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THE DIAGNOSIS OF EPILEPSY*

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That, after thousands of years of familiarity with epilepsy, the diagnosis should still sometimes be difficult and mistakes not infrequent, may seem anomalous. But it is true. The principal difficulties are three:

1. Uncertainty as to what constitutes epilepsy.
2. Polymorphism of the disease.
3. Necessary lack of observation. Ordinarily the diagnosis must be made from statements of the patient and of others.

The first difficulty we shall not consider. What we mean by epilepsy is the disease or disorder described as such by most standard authors. Meticulous nosology is no part of our present theme. Obviously, a systematic discussion of diagnosis is impossible. Our private records of more than a thousand cases show that epilepsy had to be differentiated from the following thirty conditions: hysteria, psychasthenia, brain tumor, syphilis, apoplexy and hypertension, encephalitis, dementia praecox, melancholia, Stokes-Adams disease, spasmophilia, migraine, nephritis, feeblemindedness, general paresis, multiple sclerosis, polycythemia, anemia, tic, chorea, fainting spells, infection, aural vertigo, night terror, endocrine disorder, angina pectoris, heart disease, digestive disorder, arteriosclerosis, facial spasm and laryngismus stridulus. Naturally, this list is not complete. We wish simply to call attention to a few common errors and difficulties, largely by means of illustrative cases.

IMPORTANCE OF SLIGHT ATTACKS IN YOUNG PERSONS

First we wish to emphasize the importance of slight or odd attacks in children and young people: A transient dreamy state, a momentary stare, a causeless stop in play, a sudden feeling of fright (explained or unexplained), a brief laughing spell, a fugitive pain in abdomen or chest, seeing strange things (which can or cannot be described), a sudden sensation of taste or smell (especially tasting or chewing movements), a sudden lonesome feeling, a sudden bobbing of the head, a drop to the floor, the youngster at once jumping up: repetition of such things is to be taken seriously. Generally, observation will show them to be epileptic.

One child would say "Oh, my head hurts," go to a bed (staggering a little), quietly lie down for a few minutes, rise, yawn three or four times, and be quite normal. Another child would say "Oh, mama," and run and hide its face in the mother's lap—never a convulsion or even twitching, no rigidity, no fall, apparently no disturbance of consciousness. These were the beginnings of confirmed epilepsy, and treatment should have been instituted at once.

At 3½ years a rather frail, constipated boy, whose digestion was poor and who easily took on infections, began to have slight attacks. One of our greatest internists cared for his general condition wisely and faithfully, but seemed to be amblyopic for the fits. After a few months the boy was worse. It took almost a year to convince the parents that the fits had to be treated—even though he did frequently vomit after one and often had offensive stools. On full and continuous doses of bromid and hygienic treatment he improved at once, made a good recovery, and has remained well for fifteen years.

It is unsafe to consider such repeated attacks as due to "autointoxication," constipation, digestive disorder, dietary foolishness, etc. Once these slight manifestations are recognized as epileptic, they should be vigorously treated. Little fits do not indicate little treatment.

DIFFERENTIATION OF EPILEPSY FROM HYSTERICAL ATTACKS

One of the long recognized difficulties is the differentiation of epilepsy from hysterical or psychasthenic attacks.[1] Cases 1, 2 and 3 are examples:

CASE 1.—A farmer, aged 44, had been kicked by a horse at 25, suffering a compound fracture of the skull and remaining unconscious for two hours. A month later he had a fainting spell. During the following two years he had four or five attacks of unconsciousness, said to have been without convulsions, biting of the tongue or voiding of urine. Then for twelve years he had no attacks, when one occurred during sleep, or at least at night. He called "Mary" (his wife's name), became rigid for a few moments, and then got out of bed in a "raving" state. He was violently destructive and screamed. This condition lasted for about half an hour, when he returned to bed and went to sleep. During the next few years, up to the time when we saw him, he occasionally had a smothering sensation rising from the epigastrium to the throat and followed by a hot feeling in the face. Four years after the violent attack at night he had another similar one. The next, last and worst seizure, also at night, occurred five weeks before our examination. He first became very rigid, and then got up and raged about, broke furniture, and tore curtains from the windows. They locked him in the room where he was, but he forced the door and seized a gun. His wife barred herself and her daughter in the cellar. He chased his brother from the house and down the road.

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1. We definitely dissent from the view that emotional conflicts, unfulfilled desires and mental maladaptation are important factors in the etiology of epilepsy.

Soon he suddenly came to himself, was quiet, called to his wife to come to him, and said he was all right. The wife stated that for the next two or three days "he was not quite himself."

Results of physical examination and of ordinary investigation were quite negative. Apparently he was totally amnesic of the attacks. The case looked much like epilepsy on a traumatic basis, with attacks of epileptic furor. But something in the patient's manner made us suspicious, and he was at once hypnotized. Fortunately, he was a good subject. In hypnosis he not only detailed all the happenings of the violent attacks but explained their *raison d'être*. They were purely emotional outbreaks. We may add that without treatment other than an explanation to himself and his wife, the patient has remained well—a period of fourteen years.

Case 2.—A steady, reliable chauffeur, aged 24, single, was sent to us by his employer. The father was nervous and subject to periods of depression. A paternal uncle had committed suicide. A sister had migraine, was nervous and had hysterical attacks. Seven or eight years before, during a dispute, he had fallen in a fit of unconsciousness; he did not know whether or not he had had a convulsion. In an hour he was all right. During the last few years he had several times experienced a queer feeling as if he might faint or lose consciousness. This would last only a few seconds; he would sit still with the eyes closed, and in five minutes he would feel as usual.

Two days before, when about to start his car, one or both hands suddenly became numb, he felt dizzy and as if about to faint, told his passenger who had just got in that something was the matter, and became unconscious, drooping over the wheel. In a few moments consciousness returned, but he felt dazed and confused. He was helped into the house and put to bed, and he went to sleep. The next morning he had a headache, which had persisted. Results of examination were negative. The patient was unusually vigorous, a wrestler, was quiet, composed and neither talked nor acted like a neurotic. From all information obtainable from the patient, the attack certainly looked like petit mal, and an epileptic chauffeur is a constant menace. But a talk with the employer gave us a little additional information, and with this as a wedge we succeeded in opening up a detailed history of emotional stress and conflict and an account of the attack itself which made the diagnosis clear. The seizure was purely hysterical. Furthermore, it was finally ascertained that the attack of seven or eight years before had been precipitated by almost identical circumstances and evidently was purely emotional. Without treatment, except an explanatory and reassuring talk, the young man continued well, and went through the late war and strenuous vicissitudes without nervous incident.

Case 3.—A married man, aged 31, with three healthy children, and negative family history except that the mother was of nervous temperament, had had scarlet fever with double otitis at 3 years, and typhoid at 10. Venereal disease and infantile convulsions were denied. About seven years before our examination, he rose at midnight, took a few steps, said to his wife "Catch me, I'm going to fall," and fell but got right up. He seemed a bit sleepy but otherwise normal. Two or three years later on a very cold day he ran to catch a car. Immediately after entering the car he lost his sight. He was not confused, and consciousness was not disturbed. After riding about 2½ miles, vision began to return, and 1 or 2 miles farther he left the car feeling quite normal. For probably a year before this event and continuing until a year before we saw him, the patient had had attacks of diplopia lasting from two to five minutes. They occurred about once a week to once a month without other symptoms. Two years before our examination, one evening he suddenly began asking his wife, "Where am I?" "Why are we here?" "Why did you come?" etc. There was no change in his appearance, and she thought he was joking. Immediately he complained of feeling cold, and shook as in a chill. He was put to bed, slept the rest of the night, and next morning was all right.

A month later he went by ferry from San Francisco to Oakland, and took a train, but had no recollection of leaving it. When consciousness returned he was looking into a drug store window (about an hour after leaving the train). He did not know where he was, but thought the town might be Denver, as he had relatives there. Entering the store he consulted a directory but, finding no names of relatives, went out and soon saw a familiar landmark, was at once oriented, and felt normal. For the next nine months he was entirely well, when one morning he remembered boarding a train, but nothing more until half or three quarters of an hour later, when he was ascending the steps of a bank—his destination. During the next year or more he had two attacks beginning with a chill, in which attacks he evidently was not himself and asked questions malapropos but not entirely irrational. In other words, he was not like one in delirium, and appeared more or less conscious.

In spite of much literature to the contrary, epileptic automatism lasting more than an hour or even half an hour, in which the patient does nothing irrational or unseemly, is exceedingly rare, most such patients being hysterical.[2] In the present case one must at least have been in great doubt, but four weeks before our examination this patient had fallen in a typical epileptic fit, and since then had had three more.

EPILEPTIC FITS AS SIGN OF BRAIN DISEASE

That epileptic fits may be the first sign of gross organic brain disease and remain the only symptom for some time we venture once again to emphasize. That this applies particularly to attacks beginning at 30 to 45 years is well known. The following case is a good illustration:

Case 4.—A farmer, aged 42, first seen in December, 1908, was subject, in common with his brothers and sisters and his eldest son, to migraine. At 14 years he suffered a head injury rendering him unconscious for an hour, but from which he completely recovered in a couple of days, and at 25 he received a severe bump on the vertex. At 39 he had in the night a general convulsion, followed by headache and then sleep. The next morning he felt rather ill. He had a "bad cold" at the time. A year later, also during the course of a "bad cold," while taking a nap in the afternoon, he was conscious of the arms "drawing up," and then lost consciousness in a convulsion. Some months later he had a third attack similar to these two. Six months before seen and probably a year after the third attack, he had a mild one while driving. He felt it coming, and tried to pass the lines to another, but could not. Though he lost consciousness, he did not fall from the seat. Three months later he had one seizure a week for three weeks. In these attacks the left arm drew up, the left face contracted, and the head rotated to the left; he did not fall, and he was sure that he did not lose consciousness.

Five days before our examination, he had repeated slight attacks limited to the left arm, face and head, and in the evening a bad one with loss of consciousness and biting of the tongue. In the last five days he had had many limited to the left face. He had had no increase of his customary headaches and no vomiting except after a bad evening, five days before. Between the seizures he felt well. For the last three months he had off and on a burning sensation in the left palm.

Results of examination were negative except a slight difference in movement of the two sides of the face; but as he had had a peripheral facial palsy four years before, this slight difference was of no diagnostic value. Venereal disease was denied. No Wassermänn test was made.

The patient was put on mercury and bromid and was not seen again for more than three years, though a note from his physician in June, 1909, said that he was doing well, and another in October, 1910, said that he had had no attack since August, 1909. Later in the fall of 1910 he began to sleep poorly, and the fits returned. He changed physicians and medicine, and the fits stopped. In January, 1911, he had a

2. Patrick, H. T.: J. Nerv. & Ment. Dis. June, 1907.

mild attack, and then none until the following November. Between that month and March 29, 1912, when we saw him, he had ten or twelve attacks. In these attacks he had a distinct aura, "felt kind of flurry," and had time to prepare for the attack, which ordinarily was not severe. About four weeks before, he had first noticed that the left hand was somewhat weak and clumsy. This had increased, and for a week the left leg also had felt weak. Off and on he had had some headache but no vomiting. The patient's memory was somewhat impaired.

Examination revealed typical left organic hemiparesis, but nothing else. The blood Wassermann reaction was negative. Operation was advised, and Dr. M. L. Harris found a tumor in the right prerolandic area. In short, this patient had epileptic fits for seven years before other signs of their cause, a brain tumor, appeared.

JACKSONIAN FITS IN IDIOPATHIC EPILEPSY

It is common knowledge that jacksonian fits are strongly indicative of localized organic disease; so strongly, indeed, that the term "focal fits" is synonymous, and both are often loosely used to indicate fits of obvious origin. That idiopathic epilepsy may assume this local or focal type, even without interference with consciousness, seems to be less well recognized. We have known needless brain operations to be done because of ignorance of this fact.[3] Case 5 is one of a number in our records.

CASE 5.—A husky farm hand, aged 23, of negative family history, first seen by us, March 21, 1900, had a negative personal history until about a year before, when he had begun to have "cramps" of the left arm. In these attacks the arm was abducted with clonic spasm at the elbow, and a "twist" of the entire arm. The attacks lasted about four to six seconds, occurred from once in several days to three or four in one day, were strictly limited to the left upper limb, and affected consciousness not at all. For a few minutes after an attack, the arm was weak.

A week before, he had been awakened from sleep by this spasm of the arm, which was almost immediately followed by a general convulsion in which he lost consciousness and turned onto his face. A brother occupying the same bed turned him back. "Pretty soon" the patient arose in a dazed condition, and the brother had a severe tussle to prevent him from going out. He then returned to bed and went to sleep. When awakened half an hour later he felt well except for irregular action of the heart. A few days later he had a similar attack, less severe, about one and one-half hours after retiring. He felt the drawing sensation go from the left arm across the chest and up to the left face; he felt nothing in the leg. The brother said that the patient awakened him, asked if it was not time to get up, and then twisted over and fell on his face. He went to sleep, but soon awakened feeling dyspneic and with thoracic oppression. The left arm ached.

Results of examination were negative. Under bromid and adonis vernalis there was immediate improvement, and after about a year and a half the seizures stopped for three years. He became careless about the medicine, and again had trouble. Under treatment the attacks again ceased, but not until he had become decidedly bromized. He was seen again fourteen years after the last attack and nineteen years after the beginning of his disorder and was entirely well. He had been married for five years and had a defective child.

EPILEPTIC ATTACKS WITHOUT LOSS OF CONSCIOUSNESS

We think it is not sufficiently well known that aside from jacksonian fits, epileptic attacks may occur without loss of consciousness.[4] This applies even to convulsive states. For instance, I have seen a lad with bilateral tonic-clonic spasm of arms, face, tongue and neck muscles who understood and afterward repeated questions and commands, but who at the time could not answer because the spasms prevented articulation. In our experience, attacks without involvement of consciousness are more frequent in children, but they occur in adults.

CASE 6.—A man, aged 58, had as a child had very transient frightened feelings and for some years a more or less irregular heart, especially when the stomach was overloaded or disordered. At 51 he had in the night a strange feeling about the nose and throat, and a peculiar taste "like the odor of a cat's nose." These little attacks frequently recurred. At first they were rather pleasurable, but had become disagreeable. Never were they attended by the least disturbance of consciousness. A year before he had had a typical nocturnal grand mal attack, and eight months before, his first diurnal attack of fully developed epilepsy.

CASE 7.—A blacksmith, aged 32, about two years before had begun to have attacks of a burning sensation in the throat. They lasted only a second or two, but soon became quite frequent, and after some months he noticed that with the burning sensation the jaw "set" a trifle. After a year a little contraction about the chin was added, and for the last four or five months the entire face had been involved in the transient contractions. No physical or mental stimulus seemed to start an attack, except that sometimes eating did. We succeeded in starting one by having him taste borax. The jaw "set" for a moment, then the mouth opened, the eyes closed and the face wrinkled (both sides) as if he had tasted something very sour or disagreeable and were making a grimace. In a moment this was accompanied by slight twitching—an indication of clonic spasm of the facial muscles. During the attack, respiration became audible, and he spat several times, as there was a free flow of rather stringy saliva. After the first closure the eyes were widely open. Just at first, apparently the pupils did not respond well to light, but in a moment they certainly did. There was not the slightest clouding of consciousness.

Results of examination were negative except for slight amblyopia ex anopsia of the right eye. A few days later another attack was induced in which the pupils responded normally. At first the case was treated as a functional one, without effect. Then on bromid there was very slight improvement.

We saw the patient again four years later, six years after the beginning of the trouble. He had gradually become worse, the seizures occurring principally at night, attended by loss of consciousness and followed by severe headache. Evidently the disease was epilepsy. Results of physical examination were negative.

CASES THOUGHT TO BE PSYCHIC EPILEPSY

Case 8 was referred to us as probably one of psychic epilepsy. Simply a carefully taken history showed it was not. This we have greatly abridged.

CASE 8.—A professional man of some note, aged 54, in good physical condition, two years before had had a brief attack of dizziness and of uncertainty on his feet. A year and a half before, following severe business strain, on a hot day as he got out of a buggy, he saw black specks before his eyes, sat down, the left leg cramped, and in a few moments he fell over and was unconscious for a few seconds. In a few minutes he was all right. About a month later, while pitching hay, he noticed that he had no control over the fork. Then both arms and legs began to jerk; he walked

3. This does not include the vagaries of a good many ill-balanced or ill-informed surgeons pursuing some vague or misborn theory, or the sins of a few revenue chasers.

4. It may not be without interest to repeat a remark of Jackson made years ago to one of us. "Of course I do not use the term 'jacksonian epilepsy,' but if I may use it now I would say that all epilepsy is jacksonian epilepsy." That is to say, all epileptic seizures begin in and may be confined to a limited group of nerve cells—a conception since adopted by other investigators. On this assumption, all sorts of epileptic attacks without disturbance of consciousness are readily explained.

to nearby shade, lay down and recovered in a few minutes. A few days later he had a different sort of attack. He was riding in a wagon; suddenly he jumped off, went over a fence and ran to the veranda of a neighbor where he fell, not hard, was quite conscious, and in a few minutes was well. On the same day, which was "very hot, close and sultry," he had several slight attacks of restlessness, feeling ill at ease, as if something was impending, but he could control himself. For nearly a year there were no special nervous symptoms when, again on a hot day, after some physical exertion, while at dinner he jumped up and stamped with both feet, with the left so vigorously and maladroitly that he sprained the ankle. In a few minutes the attack passed.

Not long afterward in a country hotel he wakened in the morning to find "the bed full of bugs." Immediately he had a powerful impulse to throw his feet up over his head, "thrashed about," and yelled. The landlord came. The patient "cussed him out," threw the bedding about and "raised hell." The next morning he found the same bedfellows, and the same scene was repeated. The next "fit" occurred two months later during hot weather. He had eaten freely of lettuce, which he thought was not digesting, but he slept all night. On awakening he felt uncomfortable and "as if the lettuce were impacted in the stomach." He began violently to throw himself about in bed, and his son was entirely unable to control him. But he soon became tranquil. About a month later there was another explosion. Seated in his office talking to a friend about the trip on which the three previous attacks had occurred, he became restless, had a full heavy feeling in the head, opened the window, could not sit still, and suddenly sprang into the air and yelled. Then he caught the friend in his arms, begged him not to leave him, jumped up and down, and fell or threw himself on the floor. In a few minutes he was tranquil. Ten days later, four days before consulting us, in an interurban car while talking of the same trip, he became more and more ill at ease and restless, felt as though he could not contain himself, "whooped" (he had been a cowboy), jumped up and down, and finally threw himself on the floor. In a few minutes the episode had passed.

Results of the physical examination were negative. In a man of his age and of his social and professional standing and intellectual capacity, with a practically negative neurologic history up to the age of 52, these attacks assuredly were enough to give one pause. But more searching inquiry showed that fear lay back of every attack, and back of that an impressionable, hypersensitive temperament and a poorly disciplined emotional life. A cousin had epilepsy and he was full of fear of this disease, of apoplexy and of suddenly going off his head. Of course in this case as in most cases of phobias, the patient was only vaguely conscious of his fears, naturally did not avow them and at first was inclined to deny them. The really important factors in the case had to be elicited by careful and tactful (which doesn't mean timid) inquiry.

Another case thought to be psychic epilepsy was the following:

CASE 9.—A married man, aged 32, gave a negative developmental history except that at 14 years of age, while on a train returning from a fishing trip, he had a sudden attack in which the entire body became stiff with clonic movements of the arms, tightly closed hands and moaning but no loss of consciousness. He recovered when salt was put on his lips. Past illnesses were unimportant; venereal disease was denied.

The mother and one sister had migraine. A brother, from childhood to 28 years of age, when excited would become apneic, stiff and cyanotic, but recovered when soundly slapped on the back.

Eight months before being referred to us, while walking and smoking, the patient suddenly felt a tightening of the jaw, a sensation of "iciness" in the lower back and both arms, especially the left, thoracic heaviness, palpitation, a sensation of warm fluid rising from the stomach, and nausea.[5] He leaned against a fence for support, and in about a minute felt well and remained so for a month. In the following two months he had six or eight attacks of increasing severity, some of them lasting for from five to twenty minutes. The attacks always began with the sensation of tightening about the jaws. After a few months, this sensation of tension extended down the left arm and soon this sensation changed to a pain. About six months after the beginning of the trouble he began to be "delirious" in the seizures; would cry out, beat the arm against a pillow or the chest, talk at random, sometimes repeat the same word over and over, and act in a most irrational way. At times he had two or three attacks in a day, and had had several at night. They came spontaneously, but were almost sure to be brought on by exertion, especially by walking. So we sent him in the elevator down four floors with instructions to walk up. This caused no trouble except some precordial oppression. He was then sent out to walk a few blocks. This induced a typical though not exceedingly severe attack showing all the characteristics of angina pectoris.

The patient had grave organic heart disease, and although when he had been in a hospital a few months before the Wassermann reaction was negative, reexamination gave a maximum positive.

A little investigation disclosed that the "delirium" or irrational conduct during the attacks was simply the emotional reaction of a neurotic to the pain in the arm, the precordial distress and the consequent apprehension. And, as is so frequently the case, these neurotic symptoms were in large measure due to a neuropathic environment. Dr. James B. Herrick, to whom I referred the patient, made a diagnosis of syphilitic aortitis.

5. We are inclined to think that the patient did not register all these feelings at this time but that this picture is more or less of a composite of this and subsequent attacks.

ABSTRACT OF DISCUSSION

DR. A. L. SKOOG, Kansas City, Mo.: I am particularly interested in what was said regarding the peculiar, usually unrecognized, attacks occurring in childhood. I have seen cases about which I have felt rather perplexed when analyzing them and trying to place them in a certain diagnostic category. Some of them have been proved definitely to be epilepsy, while others have proved to be functional disorders. Yet when we analyze that functional group we have to be careful lest we again make a mistake. It is possible that there may be some toxic condition or even some definite organic change in the brain substance, especially in the cortex of the brain, in the frontal or parietal lobes. It is quite possible that some of the cases of hysteria are erroneously diagnosed. Dr. Patrick rightly calls our attention to the sins of the internist. This applies not only to epilepsy, which I have observed, but also to many other neurologic or psychiatric disorders. When it comes to differentiating the particular variety of epilepsy, again we have difficulty. I have on several occasions analyzed the cases seen in institutions and those observed in private practice. There is quite a difference in these groups of cases. I noted that in private practice I get cases which one might say are in the acute stage, while in the institutions many of them are seen in the stage in which we have the fixed state undoubtedly due to chronic lesions in the brain. The prognosis is far better in the cases I have seen in private practice, in which there has been a very definitely higher recovery rate. I wish to ask Dr. Patrick whether he would place narcolepsy in the hysteroid group or in the epileptic group.

DR. F. E. COULTER, Omaha: It is very timely that our attention has been called to some of the points in connection with this "thing" that is called epilepsy. We can hardly continue to call epilepsy a disease, for undoubtedly it is a syndrome having various types of manifestations, motor, sensory and mental. As to organic epilepsy, that, of course, does not belong to true epilepsy at all, but is rather an epileptoid manifestation. And if we look into each one of our cases carefully, we shall be able to determine the causative factor and what may be the cause of this recurring syndrome. Therefore, by the exercise of care, we can generally determine the particular and definite etiologic factor. As to idiopathic epilepsy, so called, I do not know that I have ever seen such a case; and I have seen a great many

cases of epilepsy. It was my good fortune to be with Gowers about one year at the time he was working on this subject of epilepsy, but from his experience at that time, we were looking for some common etiologic factor. We never have found it, and as a result of the last twenty-five years in the observations of epilepsy we shall never discover a common etiologic factor. So it is simply a question of a combination of symptoms, a symptom complex, and Dr. Patrick has called attention to some of the unusual cases we encounter. Every one of these cases, by careful effort, can be ferreted out, and when we have found the particular etiologic factor, we should then take into account the habit, condition, and, lastly, the question of treatment of the patient and also the treatment of the parents of these children, referred to in the paper, for that is most necessary; then, I believe, we shall find the subject very much simplified. I do not believe there is such a condition as hystero-epilepsy. It is either epilepsy or hysteria; and if we analyze our cases carefully we shall be able to determine which condition exists. I am of the opinion that the subject of epilepsy is becoming more and more clear as time goes by. I am not surprised that internists overlook many of these etiologic factors in connection with epilepsy. Epilepsy is simply a syndrome, not a disease per se, as we are all beginning to understand. We use the term "idiopathic" simply for the purpose of covering up our ignorance, just as we use the word "functional" under certain conditions for the same purpose.

DR. WALTER TIMME, New York: There are some considerations on which I should like Dr. Patrick to cast some light, if he will. His paper is on the subject of the diagnosis of epilepsy. I think we ought to have a definition of what we mean by epilepsy as distinguished from other things, a diagnosis based on a proper pathogenesis, not a diagnosis based on symptomatology. If, for instance, a lesion or a functional disturbance of the cortex accompanied by motor or psychic phenomena is epilepsy, if the vasovagal spasms of the brain stem are epilepsy, how much farther are we to go in the nervous system before epilepsy ceases? Is disturbance in the anterior horn accompanied by muscle fibrillation an epilepsy, or is it not? These considerations are very important; and if Dr. Patrick can formulate an explanation or give us some line of demarcation as to what is to be diagnosed epilepsy and what is not, we should be very happy. Dr. Patrick mentioned two cases in which presumably the diagnosis of epilepsy made by him or about to be made by him was vitiated in his mind for the reason that he cured the patient by hypnotism or other means addressed to the psyche. Does Dr. Patrick mean that because he cured them by other means than we usually employ, these were not cases of epilepsy? How many cases of psychic manifestations may be subdued by just such methods as Dr. Patrick has used in the cases he described? How do we know that many of these patients, properly approached in that manner, will not be cured by that treatment; and if so, shall we say they are not epilepsy? In other words, before we can talk epilepsy we have to have a distinct understanding as to just what we mean by epilepsy; and if Dr. Patrick can shed light on this, we shall be indebted to him.

DR. TOM A. WILLIAMS, Washington, D. C.: We know of no one who has so beautifully presented the problems of differential diagnosis in neurologic conditions as has Dr. Patrick, and it is all the more dangerous therefore when in addition to his title, "The Diagnosis of Epilepsy," he insinuates into our minds matter concerning the treatment of epilepsy which some of us must look on as reactionary. He speaks of curing epilepsy by bromids. Many of us have learned to think that in a great many cases that procedure is pernicious, and that many of the epilepsies of the kind he refers to are benefited much more by general medical measures than by bromids. As to the problems of differential diagnosis, I think the difficulties that have just been referred to in the discussion have already been disposed of by Dr. Patrick. But it is not by exclusion but by finding genetic factors that we should seek diagnoses. This is most important where psychic agencies are suspected. So that it is hysteria which should be excluded by failure to find the psychopathogen, when convulsions raise doubts. If the attacks can be produced by a situation, they are not epileptic then. The two cases that he cited of pseudo-epilepsy were cases in which the diagnosis could be surely made by eliciting the etiologic factor, which was a reaction to a situation, whereas idiopathic epilepsy is a reaction of the organism quite irrespective of the situation. I think it is quite common for psychogenic affections of convulsive aspect to be misjudged and named epilepsy and treated by bromids. I think the internist is very likely to misjudge such cases; and one of our chief problems is to determine how to lead the internist and pediatrician to appreciate the fact that the case manifesting the more trifling symptoms, matters that seem less serious, as Dr. Patrick says, is one in which they most require our cooperation. Where there are gross functional manifestations of epileptic attack they do not so much require our assistance to make a diagnosis. How can we impress the internist with the importance of these little manifestations which require interpretation? In regard to jacksonian epilepsy, I am sure we have all seen cases in which a series of motor attacks will begin on one side of the body; but finally we find the jacksonism on the other side. We can only infer, then, that this is a functional disturbance which first manifests itself on one side of the body and then on the other. So there is a caution for the surgeon—to be careful in his diagnosis before venturing to explore.

DR. CHARLES A. L. REED, Cincinnati: I object to the use of the term epilepsy. It has no reputable etymologic significance. It conveys no possible suggestion of pathology. In a clinical sense it has come to mean everything and nothing. By long usage it has acquired a misleading connotation. Thus it has come to mean a hereditary disease that is not established by the facts; it has been made to imply a permanent lesion of the brain that is at most confessedly indefinite and inconsistant, and, when it exists, is always secondary. It has been made falsely to stand for a stigma of degeneration that gives to the victim a classification that is cruel and unjust. By virtue of these facts, it has been accepted by the profession as implying something that is incurable. This alleged incurability is further accepted as an excuse for a let-alone policy of treatment, a policy that is as disastrous to the individual as it is increasingly expensive to the state. Either of two terms ought to be substituted for that of epilepsy, namely: chronic convulsive toxemia or convulsive splanchnoptosis. These terms give some clue to what I have found to be antecedent and concomitant, and, consequently, causative factors. The visceral displacements may be congenital—not hereditary; they may be acquired, as from traumatism; or they may be secondary to a primary focal infection in the tonsils, teeth or accessory isnuses. The fit of a so-called epileptic is but one symptom of a vastly more comprehensive condition.

DR. M. L. PERRY, Topeka, Kan.: Dr. Patrick has called attention to what seems to me to be one of the most important phases of this most protean disease. Something has been said here in criticism of the general practitioner, but this criticism I would make somewhat broader. Not only the general practitioner but also the internist fails to recognize these cases, and even the neurologist sometimes overlooks the early symptoms of epilepsy. However, it is seldom that the neurologist sees these cases first. Textbooks are distinctly at fault in not calling attention to the facts which Dr. Patrick has mentioned. For many years our attention has been called to the convulsive motor phenomena known as epilepsy, and the psychic phenomena have frequently been emphasized. I believe that Dr. Patrick based his diagnosis of epilepsy primarily on psychic disturbance, but too little has been said about sensory disturbance. These little vague feelings the author spoke of constitute symptoms which are important from a purely academic point of view in the diagnosis of this trouble, and they are especially important from the standpoint of treatment, for this is the preepileptic stage. I would disagree with Dr. Patrick that these little fits are as hard to cure as big fits. I have had considerable experience with epileptics, having had charge of an epileptic institution for many years, and I find that in this stage one can frequently relieve a patient, as Dr. Patrick did in one case referred to. Much has been said in criticism of bromid

treatment, and a great deal of injury has been done by bromid medication; but I think that the greater part of the damage which has been laid to bromid medication has been due to the nonscientific use of this agent. I believe that if used properly it is a very valuable drug in the treatment of this disease. In the stage Dr. Patrick has pointed out, I think it is of the greatest importance that these patients, before having reached open, frank epilepsy, be given some form of sedative, and I know of nothing better than bromid medication given cautiously and in the proper dosage.

DR. HUGH T. PATRICK, Chicago: Replying to Dr. Skoog, I would say that if epilepsy is a symptom, narcolepsy is just that. That is to say, some cases of narcolepsy are epileptic, some hysterical, and some obviously due to gross brain disease. For instance, brain tumor sometimes causes it. Narcolepsy may also be a manifestation of endocrine disorder. Dr. Timme is trying to lead me into water beyond my depth in trying to beguile me into an attempt to define epilepsy. I definitely decline to make such attempt. But if he wants to know what I mean by epilepsy, I mean about what he means. We might differ here and there on an occasional case, just as we might differ as to whether a particular young woman were beautiful or only pretty or just attractive; but as to a thousand young women we probably would not differ materially, nor would we differ materially on a thousand cases of epilepsy. When I say epilepsy I mean what we all mean by epilepsy. If I conveyed the impression that I concluded that one of the cases reported was not epilepsy because I "cured" it, I did so unintentionally. What I tried to say was that it was not epilepsy because the attacks were due to an emotional conflict, if that is sufficiently accurately expressed. Epilepsy is not caused by any such thing in my opinion. Then Dr. Timme asks whether epilepsy could not be cured in the same way (psychotherapy). It cannot. Dr. Williams said I used the expression "cured" in one of these cases of epilepsy. If I did, I apologize. If I ever said that I "cured" a case of epilepsy, I beg leave to retract at once. I meant that the patient went a certain length of time without symptoms of epilepsy; in other words, after fifteen years or thereabouts he remained well. I never said I cured anything. I requested Dr. Reed to remain for the discussion, but he would not. As he went out I just had time to condemn his attitude. He announced that his remarks would be confined to the subject of diagnosis. He said not a word about diagnosis. He talked about condemning the use of the word epilepsy. If he has a better one, I shall be glad to use it. But when he wants to call epilepsy "convulsive splanchnoptosis," I certainly do not go with him. He talked about the possible causes of epilepsy and the pathology of epilepsy; he indicated the treatment of epilepsy, but he said nothing about diagnosis. He said that these cases are really and essentially a splanchnoptosis, but insisted that the patient should have a thorough examination—the teeth and tonsils, the feet, the mental condition, the emotional state, etc. But what I wish deliberately and emphatically to say is that in my opinion Dr. Reed has done untold harm to epileptics, untold harm to the families of epileptics and untold harm to the medical profession. So far as I have been able to learn, and I have tried to ascertain, Dr. Reed never has published categorical statements of his results and never has made a statement of his mortality. I have reason to believe that his mortality is unpardonably high. Dr. Perry says it is not only the internist who overlooks some of these little things; that the neurologist does the like. I should like to say to him that if there is any sin of omission or commission that neurologists have not perpetrated, I have not heard about it.

Psychotherapy Defined.—Psychotherapy is a convenient name applicable to all forms of treatment that depend on education, persuasion, or suggestion, and not on physical or chemical influences for their success. Although psychotherapy has been used by the medical profession for many generations, it has been recognized as a special method of treatment based on certain principles only within recent years. Its value in dealing with a large number of mental disorders can hardly be overstated, and it is for the future to determine the limits of its usefulness.—Buzzard, *Mental Hygiene*, July, 1922.

CIRCULATION OF PHENOLSULPHONEPHTHALEIN IN THE CEREBROSPINAL SYSTEM *

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The formation, circulation and absorption of the cerebrospinal fluid in the various fluid spaces of the central nervous system is a subject concerning which much information has been obtained. The work of Mott,[1] Cushing,[2] Frazier,[3] Weed [4] and others has shown that the greater part of the fluid is formed in the choroid plexuses situated in the ventricles of the brain. Opinion tends to the conception that the fluid is formed as a secretion rather than as a transudate. It is possible that some of the fluid is formed on the surface of the cortex of the brain or spinal cord as a secretion of the serous surfaces of the meninges. However, if this is so, it is only an insignificant portion of the fluid that is so formed. The greater portion of the fluid is formed by the choroid plexuses of the lateral ventricles. The fluid thus formed in the lateral ventricles communicates with that in the third ventricle by means of the foramen of Monro, and thence with the fluid of the fourth ventricle through the aqueduct of Sylvius. From the fourth ventricle there is a connection into the subarachnoid space through the foramina of Luschka and Magendie. There is convincing evidence that a free communication exists between the ventricular system and the subarachnoid spaces. Dandy and Blackfan [5] have shown that the ventricular fluid may be entirely exhausted by aspiration from the lumbar subarachnoid space, and that the ventricles and cerebral subarachnoid spaces may be refilled with air injected into the lumbar subarachnoid space. They further showed that a dye, neutral phenolsulphonephthalein, injected into the lumbar subarachnoid space, could be obtained from the ventricles in the course of several minutes, and also that the dye, when introduced into the ventricles, could be obtained from the lumbar subarachnoid space. These observations have been confirmed by Dahlström and Wideröe,[6] and the dye experiments by ourselves, as will be shown later in this paper.

There is also sufficient evidence to show not only that there is a communication between the ventricles and the subarachnoid spaces, but also that fluid is constantly pouring from the ventricles into the subarachnoid spaces. Clinical observation has shown that an exudate in the region of the foramina of Luschka and Magendie leads to an internal hydrocephalus.

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* This work was greatly aided by funds granted by the U. S. Interdepartmental Social Hygiene Board.
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1. Mott: Lectures on the Cerebrospinal Fluid, Lancet, July 2 and 9, 1910.
2. Cushing: Studies on the Cerebrospinal Fluid, J. M. Res. **31**: 1 (Sept.) 1904.
3. Frazier and Peet: Am. J. Physiol. **36**: 268, 1914.
4. Weed: Studies on the Cerebrospinal Fluid, J. M. Res. **31**: 21, 1914.
5. Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, J. A. M. A. **61**: 2216 (Dec. 20) 1913; Internal Hydrocephalus, Am. J. Dis. Child. **8**: 406 (Dec.) 1914; **14**: 424 (Dec.) 1917.
6. Dahlström and Wideröe: Studie über den Liquor cerebrospinalis und dessen Kommunikations—verhältnisse bei syphilogenen Geisterkrankheiten.

Frazier and Peet and Dandy and Blackfan have shown that an experimental plugging of the aqueduct of Sylvius likewise produces an internal hydrocephalus. Frazier and Peet proved that fluid made its way out through the sylvian aqueduct, by placing a cannula into the aqueduct in two dogs under urethane-morphin anesthesia and noting the flow of fluid through the cannula. They were able to prove that there was a formation of fluid in the ventricles which made its way out through the cannula. They reported the rate of discharge of cerebrospinal fluid at the rate of 0.231 c.c. a minute in one case, and 0.192 c.c. a minute in another case. Dercum [7] quotes Mestrezat and Frazier to the effect that the cerebrospinal fluid renews itself six or seven times in twenty-four hours. As the average amount of cerebrospinal fluid in the combined fluid spaces is from 125 to 175 c.c., this would indicate that approximately 1,000 c.c. of spinal fluid is formed in twenty-four hours. The greater portion of this fluid, as already stated, is formed in the lateral ventricles. As blockage of either the foramina at the base of the brain or at the aqueduct of Sylvius produces an acute internal hydrocephalus, it follows that the fluid that is formed in the ventricles is not completely absorbed in the ventricles. This proves that the fluid must make its way out of the ventricular system into the subarachnoid spaces.

Stern [8] has given further experimental evidence of the flow of the fluid from the ventricles to the cerebral subarachnoid spaces. He injected substances into the cerebral ventricles, and found these substances in the subarachnoid space after a very short interval. On the contrary, the same substances injected under the dura were found in the ventricles only when the volume of fluid injected was very large, and when it was injected under a pressure sufficient to disturb the normal conditions. Weed has shown that the cerebrospinal fluid is absorbed into the venous channels, particularly in the subarachnoid space. The connection between the perineuronal spaces and the perivascular spaces of His and Virchow-Robin and the ventricles and subarachnoid space is not definitely proved, and is a matter that we shall not consider in this paper.

There is evidence that substances injected into the cerebrospinal fluid system make their way into the blood stream with considerable rapidity. Dixon and Halliburton [9] state that "large quantities of a neutral fluid, such as physiological saline solution, disappear within a few minutes when introduced into the craniovertebral cavity." They further state that the rate has some relation to the diffusibility of the injected substances. Thus, nicotin, epinephrin and atropin, which are rapidly diffusible when given into the cerebrospinal fluid system, produce their pharmacologic results almost as quickly as when given intravenously. They say that diffusion is most rapid in the region of the cisterna magna, and least rapid in the lumbar region. Dandy and Blackfan have shown that neutral phenolsulphonepththalein, introduced into the lumbar subarachnoid space, appears very rapidly in the urine. In one case they found the dye in the urine of the bladder in one minute after injection into the lumbar subarachnoid space. This is even more rapidly than occurs when the dye is given intramuscularly. Mehrtens and West [10] likewise report that the dye makes its appearance in the urine following intraspinal injection in from four to fourteen minutes.

We may thus summarize the foregoing statements: In conditions of normal health, cerebrospinal fluid is constantly being formed in the cerebral ventricles in considerable amounts. This fluid is absorbed in large part in the subarachnoid spaces, arriving there by a course through the aqueduct of Sylvius and the foramina of Luschka and Magendie.

The flow of fluid from the ventricles to the subarachnoid space and its absorption must produce a movement of the fluid in the fluid spaces. This movement of the fluid is probably increased by the effects of respiration and of the heart beat. When a standpipe is connected with the lumbar or cistern subarachnoid spaces, or the lateral ventricle, oscillation of the fluid may be observed with each respiration or beat of the heart. A deep respiration, a cough, movement of the head and body, emotional reactions on the part of the patient, or compression of the jugular veins will cause a change of the height of fluid in the standpipe of as much as 200 mm. It must be granted that there is a movement or flow of cerebrospinal fluid in its system. It becomes of interest to learn what happens to substances introduced into one portion or another of the cerebrospinal fluid space. Despite the fact that there is free communication from one portion of the fluid system to another, there are numerous observations which show that an interchange of substances between the different areas is somewhat limited. In 1910, Schmorl [11] reported that the ventricular fluid frequently differed in its physical and chemical characteristics from the spinal fluid. Of ten patients who died with icterus and in whom the spinal fluid was colored by bile pigment, he found the ventricular fluid clear in seven. In one case the ventricular fluid was only slightly colored, and in the two remaining cases the ventricular fluid was more highly colored than the spinal fluid. He stated that in the cases in which the ventricular fluid was colored the choroid plexus showed evidence of injury, from which he deduced that in cases in which the choroid plexus was uninjured, the ventricular fluid was colorless, although the spinal fluid contained color. These observations indicate that there is not a very active interchange between the ventricular and lumbar fluids. In the case in which the lumbar fluid was more highly colored than the ventricular fluid, it is possible to assume that the flow of fluid was greater from the ventricles to the lumbar region rather than the reverse, and that the pigment was thus washed into the lumbar region. However, in his two cases in which the ventricular fluid was more strongly colored than the lumbar fluid, this explanation would not hold.

Schmorl further reported seven cases of paresis in which the spinal fluid gave a positive Wassermann reaction, whereas in six of the cases the ventricular fluid gave a negative reaction. In only one of the seven cases was the Wassermann reaction positive in both the ventricular and spinal fluids. In two cases of scarlet fever, he found that the spinal fluid gave a positive Wassermann reaction, whereas the ventricular fluid gave a negative reaction.

7. Dercum, F. X.: The Functions of the Cerebrospinal Fluid, Arch. Neurol. & Psychiat. **3**: 230 (March) 1920.

8. Stern: Le liquide cephelorachidien au point de vue de ses rapport avec la circulation sanguine et avec les éléments nerveaux de l'axe cérébrospinal, Schweiz. Arch. f. Neurol. u. Psychiat. **8**: 215, 1921.

9. Dixon and Halliburton: Rapidity of Absorption of Drugs Introduced into the Cerebrospinal Fluid, J. Physiol. **44**: 7, 1912.

10. Mehrtens, H. G., and West, H. F.: Absorption of Phenolsulphonephthalein, Arch. Int. Med. **20**: 575 (Oct.) 1917.

11. Schmorl: Liquor cerebrospinalis und Ventrikelflüssigkeit, Verhandl. d. deutsch. path. Gesellsch., Erlangen, **14**: 288, 1910.

Cushing has shown that the sugar content of the ventricular fluid differs from the sugar content of the spinal fluid. In 1915, one of us (H. C. S.[12]) showed that postmortem the colloidal gold reaction differed in fluids taken from various loci of the cerebrospinal fluid system. The fluid tested came from the ventricles, base of the brain, and lumbar region. More recently this difference between the reactions of the ventricular and spinal fluids has been observed antemortem in cases of paresis. Frequently the ventricular fluid will show normal findings as regards cell count, globulin, albumin, colloidal gold and Wassermann reactions, whereas the spinal fluid will give the typical paretic findings. This was observed in some of the cases in which we have made observations, reported in a subsequent part of this paper. This difference between the ventricular and spinal fluids is reported by Dahlström and Wideröe, who in seven cases of general paresis found the ventricular fluid positive to the Wassermann test in only one case and negative in six, whereas the spinal fluid was positive in all seven cases. Differences were also found in the cell count, globulin and albumin content, and in two of their cases in the colloidal gold reaction.

There is also abundant experimental evidence to prove that there is no very active or rapid circulation or diffusion of substances introduced into one locus or another. Goldmann [13] introduced trypan blue into the spinal subarachnoid space of living animals, and later examined them postmortem. He found that the dye was most concentrated at the point of injection, the intensity of the coloration diminishing in the cephalad direction. In the cranial cavity the coloration was almost entirely basilar. However, when the dye was introduced into the cerebral subarachnoid space, it spread immediately over the entire cortex.

Cocain or procain, injected into the lumbar region for purposes of anesthesia, rarely produces an effect above the dorsal region.

Kramer [14] injected 2 c.c. of a 1 per cent. solution of methylene blue into the cerebral subdural space of a dog and killed it after ten minutes. "A blue coloration," says Kramer, "is confined to that portion of the brain in front of the tentorium. The entire surface of the cerebral cortex on the side of the injection and a small though varying area of the mesial surface of the opposite hemisphere is stained; that is, the fluid diffuses to some extent under the falx cerebri." He found that there was a slight upward movement of the dye when introduced into the lumbar sac. He believes that there is an upward movement of the dye through the central canal of the cord when this is patent. He believes that the ciliated epithelium lining the central canal moves the dye cephalad, and that it thus reaches the fourth ventricle. It is his opinion that the explanation of collapse in spinal anesthesia occurs when the central canal is patent, and that the anesthetic is transported to the fourth ventricle through this opening.

Horbatsky [15] studied vital staining in four moribund children. The first three of his patients were ill with dysentery, and the fourth with tuberculous meningitis. One cubic centimeter of methylene blue in a 1:20 dilution was injected into the subarachnoid space between the third and fourth lumbar vertebrae. In two cases this was done two days, in one case twenty-four hours, and in the fourth case ten hours prior to death. In the three cases of dysentery, when the skull was opened, the coloration was limited to the base of the brain, pons and medulla, with some coloration in the ventricles, especially the fourth. The cranial nerves also were colored, but the cerebral cortex itself showed only a very slight coloration. In the case of tuberculous meningitis, the brain was not colored at all. (It is probable that adhesions were present in the case of tuberculous meningitis which prevented the diffusion.)

The work of Dandy and Blackfan with the injection of neutral phenolsulphonephthalein in the living human being has opened up the possibility of further study of this subject. They showed that neutral phenolsulphonephthalein can be injected into the cerebrospinal fluid without any untoward effects. In their experiments they found that phenolsulphonephthalein injected into the lateral ventricle appeared in the lumbar spinal fluid in from two to three minutes, and also that the dye introduced into the lumbar subarachnoid space appears very shortly in the cerebral ventricles. Dahlström and Wideröe have confirmed these observations of Dandy and Blackfan. We also have confirmed these observations, as will be shown below. Weston,[16] on the other hand, was unable to confirm these findings. He introduced the dye into the lumbar region, and was unable to obtain any from the cisternal fluid at intervals varying from fifteen minutes to five hours after the injection of the dye.

That there is not a very free flow of dye from one region to another of the cerebrospinal fluid system may be deduced from the observations on the elimination of the dye from the kidneys when introduced into the cerebrospinal fluid system. Dandy and Blackfan reported that phenolsulphonepthalein injected into the subarachnoid space (presumably meaning the cerebral subarachnoid space) appeared in the urine in from six to eight minutes, and that at the end of two hours from 35 to 60 per cent. had been eliminated. However, when the dye was introduced into the ventricular fluid it appeared only after from ten to twelve minutes, and at the end of two hours only 12 to 20 per cent. had been excreted. This indicates that a great deal of the fluid containing the dye had not made its way in the cerebral subarachnoid space; otherwise more of the dye would have been eliminated.

AUTHORS' EXPERIMENTS

After this review of the literature we may proceed to an account of our own experiments. These were performed on patients with neurosyphilis who were receiving antisyphilitic treatment, and who consented to the addition of the dye. Neutral phenolsulphonephthalein was introduced either in the lumbar subarachnoid space, the cistern subarachnoid space or the anterior horn of the lateral ventricles, and subsequently a puncture was made in one of these areas to see whether the dye had reached the latter point, and if so in what amount. In some instances 1 c.c. of spinal fluid was withdrawn and 1 c.c. of the dye added, an attempt being made to disturb the fluid as little as possible by this manipulation of withdrawal and injection. In other cases the dye was added to the Swift-Ellis

12. Solomon and Welles: Varieties of Gold Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System, Boston M. & S. J. **172**: 628, 1915.

13. Goldmann: Vitalfarbung am Zentralnervensystem, Berlin, 1913.

14. Kramer: The Circulation of the Cerebrospinal Fluid and Its Bearing on the Pathogenesis of Poliomyelitic Disease, New York M. J. **95**: 532, 1912.

15. Stepleanu-Horbatsky, V.: New Studies on Cerebrospinal Fluid Circulation, Presse méd. **28**: 254 (April) 1920.

16. Weston, P. G.: Phenolsulphonephthalein Absorption from the Subarachnoid Space in Paresis and Dementia Praecox, Arch. Neurol. & Psychiat. **5**: 58 (Jan.) 1921.

arsphenaminized serum; from 15 to 20 c.c. of cerebrospinal fluid was then withdrawn, and an approximately equal amount of serum containing the dye was reinjected, thus duplicating the procedure in the intraspinal treatment of neurosyphilis. The patient was kept recumbent until after the completion of the experiment.

TABLE 1.—CIRCULATION OF PHENOLSULPHONEPHTHALEIN IN THE CEREBROSPINAL FLUID

Patient	Serum Injected, C.c.	Time Between Punctures, Min.	Color Appeared	C.c. of C. S. F. Drained Before Color Appeared	Mg. of Phenolsulphonephthalein per C.c. in First Specimen of C. S. F.
First Group: Lumbar Subarachnoid Space to Cisterna Magna					
1. H. P.	..	7	No	33	.....
2. H. P.	..	19	Yes	14	.....
3. H. P.	..	25	Yes	Color in 1st 5 c.c.	0.0060
4. F. P.*	..	30	No	16	.....
5. C. H.	..	30	Yes	0	.....
6. J. C.	..	35	Yes	0	0.0016
7. C. S.	..	45	Yes	0	.....
8. C. M.	..	60	Yes	0	0.0015
9. J. B.	..	60	No	40	.....
10. J. C.	..	60	No	19	.....
11. A. F.	..	70	Yes	0	0.0015
Second Group: Lumbar Subarachnoid Space to Cisterna Magna—Dye in Serum					
12. H. P.	15	14	Yes	0	0.0006
13. J. S.	20	18	Yes	0	0.015
14. J. K.	20	35	Yes	0	0.0007
Third Group: Cisterna Magna to Lumbar Subarachnoid Space					
15. P. M.	..	10	Yes	0	0.0016
16. P. M.	..	10	Yes	0	0.0016
17. P. M.	..	30	Yes	16	.....
Fourth Group: Cisterna Magna to Lumbar Subarachnoid Space—Dye in Serum					
18. W. L.†	3	5	Yes	5	.....
19. G. M.	12	10	Yes	16	.....
20. W. L.†	2	30	Yes	10	.....
21. P. M.	10	30	Yes	0	0.001
Fifth Group: Lumbar Subarachnoid Space to Cerebral Ventricles					
22. C. M.	..	15	Yes	50	.....
23. J. S.	..	20	Yes	0	0.001
24. W. M.	..	20	Yes	20	.....
25. C. S.	..	25	Yes	0	0.0008
26. H. P.	..	30	Yes	10	.....
27. J. S.	..	30	Yes	3	.....
28. J. S.	..	30	Yes	4	.....
29. H. P.	..	45	Yes	8	.....
Sixth Group: Lumbar Subarachnoid Space to Cerebral Ventricles—Dye in Serum					
30. C. M.	10	20	Yes	5	.....
31. J. S.	20	20	Yes	0	0.001
32. H. P.	20	30	Yes	15	.....
33. J. S.	20	35	Yes	0	Faint trace
Seventh Group: Cerebral Ventricles to Lumbar Subarachnoid Space—Dye in Serum					
34. E. B.	12	15	Yes	0	0.005
35. F. P.	20	30	Yes	15	.....
36. T. R.	12	40	Yes	10	.....
37. H. P.	10	40	Yes	21	.....
Eighth Group: Cisterna Magna to Cerebral Ventricles					
38. J. S.	..	8	Yes	0	0.0033
39. E. B.	..	28	Yes	0	0.005

* In this case no color appeared in 16 c.c. of cerebrospinal fluid withdrawn when the cistern was tapped thirty minutes after the dye had been given; 24 c.c. of serum was then given intraspinally, and two minutes later color appeared in the cisternal fluid.

† Patient became nauseated shortly after the administration of a few cubic centimeters of serum, and less than 1 c.c. of dye was injected.

In the first group of experiments, 1 c.c. of neutral phenolsulphonephthalein was introduced into the lumbar sac between the third and fourth lumbar vertebrae, after 1 c.c. of spinal fluid had been withdrawn. Cisternal puncture was then made to determine whether any dye had reached this level. The time elapsing between the injection of the dye and cistern puncture varied from seven to seventy minutes. A perusal of Table 1 shows that the results were not uniform. In five instances the dye was obtained in the cistern fluid when the first drops were removed. In four cases no dye was recovered, even after a number of cubic centimeters of cerebrospinal fluid had been removed from the cistern region in order to aspirate the lumbar fluid. It is to be presumed that in these cases the fluid obtained from the cistern puncture came largely from the ventricles, and that not much fluid was obtained from the lumbar region. In one case, after 14 c.c. of cistern fluid had been withdrawn, dye made its appearance. In the cases in which no dye was obtained from the cistern region, double puncture according to the technic of Ayer was performed in order to prove that there was no blockage. In no case of this series was there any evidence that there was any anatomic blockade to the flow of the cerebrospinal fluid. In those cases in which the dye was found in the first drops obtained from the cistern puncture, the amount was very small indeed. As may be seen by a perusal of Table 2, as one continues to withdraw fluid the amount of dye substance in each succeeding specimen becomes greater. Further evidence that the failure of the dye to appear in the cistern region was not due to anatomic blockage was shown in Case 4 of Table 1, in which the cistern puncture was made thirty minutes after the dye had been given, and no color appeared in 16 c.c. of the cerebrospinal fluid withdrawn from the cistern. Then 24 c.c. of serum was given intraspinally, and at the end of two minutes the dye had been driven up into the cisternal fluid.

The second series of experiments consisted of withdrawing from 15 to 20 c.c. of spinal fluid from the lumbar region and then replacing an approximately equal amount of arsphenaminized serum, to which had been added 1 c.c. of the dye. At subsequent periods, varying from fourteen to thirty-five minutes, a cistern puncture was performed, and in each of the three cases dye was obtained in the first drops of fluid from the cistern region; and again the amount of dye that appeared was exceedingly small. The results are similar to those obtained when the dye was added directly to the cerebrospinal fluid without much disturbance due to withdrawal of a good deal of fluid and its replacement. In the second set of experiments the fluid was, of course, considerably disturbed by the withdrawal of from 15 to 20 c.c., and its replacement by serum put in under pressure.

The third group of experiments was the reverse of those shown in the first group in Table 1. In the latter series, 1 c.c. of dye was put into the cisterna magna after the withdrawal of 1 c.c. of cistern fluid. In two instances color was obtained in the lumbar fluid ten minutes after the injection of the dye in the cistern. In both of these experiments the amount of dye was small, but it increased as more and more fluid was withdrawn, showing the effect of the aspiration of the fluid downward. In the third experiment the dye was obtained only after 15 c.c. had been withdrawn.

In the fourth group, serum containing dye was injected into the cisterna magna, and spinal puncture was performed from five to thirty minutes thereafter. In the case in which the period between the injection was thirty minutes, dye was found in the first drops. In the other cases, in which the lumbar punctures were performed five, ten and thirty minutes, respectively, after the cistern injection, it was necessary to withdraw 5, 10 and 16 c.c., respectively, before color appeared.

In the fifth set of experiments, 1 c.c. of dye was given into the lumbar sac after the withdrawal of 1 c.c. of fluid, and then a puncture was made of the anterior

horn of the lateral ventricle at a period varying from fifteen to forty-five minutes subsequently. In two cases in which the puncture was made twenty and twenty-five minutes subsequent to the lumbar injection of the dye, the first drops of ventricular fluid were colored, although the amount of dye was exceedingly small. In the remaining cases it was necessary to withdraw the ventricular fluid before the color was obtained. The amount that had to be withdrawn before the fluid became colored varied from 3 to 50 c.c.

In the sixth group, the dye was given intraspinally in blood serum, after the withdrawal of spinal fluid. In two instances in which the ventricle was tapped in thirty and thirty-five minutes, respectively, after the injection, the first drops showed a slight amount of dye. In the other two cases, in which the puncture was made twenty and thirty minutes after the injection, it was necessary to withdraw 5 and 15 c.c., respectively, before color appeared.

In the seventh group, the process was reversed from that of the sixth group, in that serum containing dye was injected into the lateral ventricle after the withdrawal of an approximately equal amount of ventricular fluid, and lumbar puncture was performed from fifteen to forty minutes subsequently. In one case in which the puncture was performed fifteen minutes after the introduction of the dye in the serum, color was found in the spinal fluid in the first drops. In three other cases it was necessary to withdraw 10, 15 and 21 c.c., respectively, before the lumbar fluid showed any color.

The eighth set of experiments consisted in the introduction of 1 c.c. of dye to the cisterna magna after the withdrawal of 1 c.c. of cistern fluid, followed in eight and twenty-eight minutes, respectively, by a ventricular tap. In both cases dye was found in the first drops obtained from the ventricle.

In order to be sure that the appearance of dye in the different portions of the cerebrospinal fluid system, even that in which it was injected, was not due to absorption into the blood stream and excretion into these spaces, dye was given intramuscularly, and a number of minutes later spinal and ventricular punctures were made in several cases. In no instance was there any evidence of dye in the fluid, thereby showing that the dye did not make its way from the blood stream into the cerebrospinal fluid spaces under these experimental conditions.

These groups of experiments, the results of which are similar to those obtained by Dandy and Blackfan, and Dahlström and Wideröe, and contrary to those of Weston, would seem to show conclusively that there is a direct communication between the various loci of the fluid system. On the other hand, the interchange between these different areas is shown to be inconsiderable, as very little dye makes its way from one locus to another. In Table 2 we have indicated the amount of phenolsulphonephthalein per cubic centimeter of fluid that was obtained in successive specimens from those cases in which the dye was obtained in the first drops at the second puncture. It will be noted that with the withdrawal of more and more fluid the amount of dye present increased in practically every instance, indicating that the withdrawal of fluid tended to aspirate the fluid from the region in which the dye had been added. More important is the small amount of dye that was obtained in the first specimen. One cubic centimeter of the mixture of phenolsulphonephthalein which was used in these experiments contained 6 mg. of phenolsulphonephthalein. If we assume that the cerebrospinal fluid spaces contained 175 c.c. of fluid, which is Weston's highest figure for cases of gen-

TABLE 2.—AMOUNT OF PHENOLSULPHONEPHTHALEIN IN SUCCESSIVE SPECIMENS OF CEREBROSPINAL FLUID OBTAINED FROM CASES IN WHICH DYE APPEARED AT ONCE

		Amount Cerebrospinal Fluid C.c.	Mg. of Phenolsulphonephthalein per C.c.
	Cases from First Group		
Case 3	1st tube	5	0.0000
	2d tube	6	0.001
	3d tube	6	0.001
Case 5	No record of amount		
Case 6	1st tube	2½	0.0016
	2d tube	4	0.002
	3d tube	2	0.008
Case 7	No record of amount		
Case 8	1st tube	No record	0.0015
Case 11	1st tube	No record	0.0015
	Cases from Second Group		
Case 12	1st tube	15	0.0008
	2d tube	5	0.0010
	3d tube	4	0.0016
	4th tube	3	0.0025
Case 13	1st tube	2	0.0015
	2d tube	7	0.015
	3d tube	7	0.015
	4th tube	7	0.015
	5th tube	4	0.015
Case 14	1st tube	2	0.0007
	2d tube	3	0.0010
	3d tube	2	0.0012
	Cases from Third Group		
Case 15	1st tube	10	0.0016
	2d tube	10	0.008
	3d tube	10	0.02
	4th tube	10	0.03
Case 16	1st tube	3	0.0016
	2d tube	6	0.004
	3d tube	8	0.008
	4th tube	5	0.01
	Cases from Fourth Group		
Case 21	1st tube	2	0.001
	2d tube	2	0.002
	3d tube	4	0.003
	4th tube	4	0.004
	5th tube	8	0.005
	6th tube	5	0.007
	7th tube	2	0.004
	Cases from Fifth Group		
Case 23	1st tube	7	0.001
	2d tube	10	0.002
	3d tube	7	0.003
Case 25	1st tube	5	0.0008
	2d tube	7	0.0016
	3d tube	10	0.0028
	4th tube	8	0.004
Case 27	1st tube	5	0.0003
	2d tube	7	0.0008
	3d tube	10	0.0015
	4th tube	17	0.005
	5th tube	9	0.007
	Cases from Sixth Group		
Case 31	1st tube	3	0.001
	2d tube	2	0.003
	3d tube	9	0.005
	4th tube	9	0.015
	5th tube	10	0.05
Case 33	1st tube	5	Faint trace
	2d tube	3	Faint trace
	3d tube	4	0.0005
	4th tube	3	0.0015
	Cases from Seventh Group		
Case 34	1st tube	3	0.005
	2d tube	5	0.007
	3d tube	2	0.007
	Cases from Eighth Group		
Case 38	1st tube	3	0.0003
	2d tube	4	0.007
	3d tube	12	0.01
	4th tube	13	0.03
Case 39	1st tube	4	0.005
	2d tube	6	0.01
	3d tube	8	0.02
	4th tube	3	0.02

eral paresis, it would follow that if the dye were uniformly distributed throughout, each cubic centimeter should contain 0.034 mg. It will be noted that in the majority of instances in which dye did make its appearance it was in very much smaller quantities, thereby indicating that only a small fraction of the dye injected had moved any distance from the point of injection.

How much the movement of the dye is dependent on the circulation of the cerebrospinal fluid, and how much is due to mere diffusion, is a question that we are unable to definitely answer. As shown by Weston, the specific gravity of the neutral phenolsulphonephthalein is ordinarily 1.0061, and the specific gravity of the spinal fluid in cases of paresis examined by him varied between 1.0061 and 1.0073. Weston states that one would expect the dye to rise to higher levels of the cord in those cases in which the specific gravity of the fluid was greater than that of the dye. In order to show in vitro the diffusion of the dye in cerebrospinal fluid, the following experiments were performed :

PROTOCOLS OF DIFFUSION EXPERIMENTS

EXPERIMENT 1.—Five-tenths cubic centimeter of serum plus 0.5 c.c. phenolsulphonephthalein placed at bottom of 29 c.c. spinal fluid in a 30 c.c graduate, 2 cm. in diameter and 6 cm. high.

12:25 p. m. (Color extended above bottom) 0.3 cm.
12:30 p. m. Diffuse pale red through entire 6 cm., but dark red remained in lower 0.3 cm.
12:45 p. m. Same as above, only the serum in the lower 0.3 cm. could be definitely distinguished.
1:45 p. m. Same as above, only the fluid throughout was a darker red and the color was evenly distributed, showing that the dye had diffused upward, but the blood serum was sharply demarcated from the cerebrospinal fluid and remained at the bottom of the graduate.
2:45 p.m. Same.
10:45 p.m. Same.

EXPERIMENT 2.—Ten cubic centimeters of serum placed in bottom of 50 c.c. graduate (22 cm. in diameter and 15 cm. high) with 40 c.c. spinal fluid above. Fluids were slightly mixed and the color of the serum extended up to 4.5 cm.

12:05 p. m. Color of serum, 4.5 cm.
12:15 p. m. Color of serum, 3.5 cm.
12:25 p. m. Color of serum, 3.5 cm.
12:35 p. m. Color of serum, 3.5 cm.
12:45 p. m. Color of serum, 3.5 cm., showing that there was no upward diffusion of the blood serum.

One cubic centimeter of phenolsulphonephthalein added at bottom of serum. Dye diffused rapidly through serum, and by 12:48 had extended up as far as 6 cm.

1:45 p. m. Color (red) up to 12 cm. Faint pink above.
2:45 p. m. Color (red) up to 12 cm. Faint pink above.
10:45 p. m. Color (red) up to 12 cm. Faint pink above, showing that blood serum tends to hold the dye.

Much dye remained in the serum at bottom of graduate.

EXPERIMENT 3.—One cubic centimeter of serum placed at bottom of 49 c.c. spinal fluid in 50 c.c. graduate as used above.

12:00 noon. Serum extended up 0.6 cm.
12:15 p. m. Serum extended up 0.45 cm. Definite line of demarcation.
12:35 p. m. Serum extended up 0.45 cm.
12:45 p. m. Serum extended up 0.45 cm.
1:45 p. m. Serum extended up 0.45 cm.
2:45 p. m. Serum extended up 0.45 cm.
10:45 p. m. Serum extended up 0.45 cm.

EXPERIMENT 4.—One cubic centimeter of dye placed under 49 c.c. cerebrospinal fluid in 50 c.c. graduate as used above. There was some mixing almost immediately.

12:15 p. m. Color extended upward 1.5 cm.
12:30 p. m. Color extended upward 9 cm.
12:35 p. m. Color extended upward 11 cm.
12:45 p. m. Color extended upward 13.5 cm.
1:15 p. m. Color throughout fluid and of equal intensity throughout.
1:45 p. m. Same.
2:45 p. m. Same.
10:45 p. m. Same.

EXPERIMENT 5.—One cubic centimeter of dye placed at top of 50 c.c. of cerebrospinal fluid. There was almost instant diffusion, and in thirty minutes the color had reached the bottom and was of equal intensity throughout.

EXPERIMENT 6.—Five-tenths cubic centimeter of serum plus 0.5 c.c. dye placed at top of 49 c.c. cerebrospinal fluid. The colored mixture settled rapidly in channels along the side of the vessel, so that in five minutes some of it had reached the bottom.

In fifteen minutes practically all color was in the lower 3 cm., shading off through the next 3 cm. to a faint pink color which was of equal intensity throughout the upper 9 cm.

This condition then remained stationary for two hours.

EXPERIMENT 7.—The experiments were repeated to observe the diffusion in a horizontal direction. For this purpose, a glass tube with a diameter of 0.5 cm. was used; the two ends of the tube were bent upward. Cerebrospinal fluid was then placed in the tube and blood serum, phenolsulphonephthalein and a combination of dye and serum was added to one end of the tube in the respective experiments. The dye progressed rapidly throughout the fluid. The blood serum progressed more slowly and remained in the lower portion of the tube in its horizontal progression. When one end of the tube was slightly raised, the blood serum sank to the lower end of the tube. When the dye and serum were added together, the dye tended to remain in the serum for a considerable period, and only after a time interval did the dye separate from the serum in the lower portion of the tube and color the entire volume of fluid.

CONCLUSIONS

1. Phenolsulphonephthalein (neutral) diffuses fairly rapidly through cerebrospinal fluid. One cubic centimeter of the dye will diffuse in thirty minutes through 49 c.c. of cerebrospinal fluid, showing an equal intensity of color throughout. This holds true when the dye is placed at the bottom and when it is placed at the top of the column of cerebrospinal fluid

2. Blood serum shows no tendency to diffuse upward. One cubic centimeter of serum placed at the bottom of a column of cerebrospinal fluid remained at the same level more than ten hours. Serum mixed with dye when placed at the top of the column settled rapidly to the bottom, carrying the dye with it. From this point the dye tended to diffuse to a certain extent while the serum remained stationary.

3. When serum and phenolsulphonephthalein are mixed, the serum tends to hold the dye and prevents diffusion to the extent shown above when the dye is used alone.

As a result of our experiments, we believe that it may be stated that there is a free communication between the lumbar subarachnoid space, the cisternal subarachnoid space, and the lateral ventricles. Under ordinary condition, however, it is probable that there is not very much movement from one locus to another of the substances introduced into the cerebrospinal fluid. The movement of the introduced substances may depend either on circulation of the cerebrospinal fluid or, what is more probable, on a diffusion of the substances due to osmotic and specific gravity effects. From our observations of the dye and blood serum introduced into cerebrospinal fluid in vitro, it is seen that the dye will rise against gravity, whereas the blood serum seeks the lowest level. When the tube is placed in a horizontal position, both the dye and blood serum will flow slowly from one end to the other. However, in the case of the blood serum, this occurs in the lowest portion of the fluid. We may therefore assume that when the blood serum is introduced into the subarachnoid space, it will tend to reach the lowest portion of the cerebrospinal fluid system by a slow diffusion process. On the contrary, there is no evidence to show that there is a sufficiently active circulation of the cerebro-

spinal fluid to displace the blood serum in a direction contrary to gravity. It seems probable that the blood serum introduced into the lumbar subarachnoid space will make its way cephalad only when the head is lower, or at least as low as the lumbar subarachnoid space, or else when the pressure with which it is introduced is sufficiently great to force it upward. The rate of diffusion is quite slow and, as has been shown by Dandy and Blackfan, substances make their way out of the spinal subarachnoid space into the blood stream. Therefore, it is to be assumed that a certain amount of the blood serum introduced intraspinally will make its way out into the general circulation from the spinal subarachnoid space. Under conditions in which intraspinal therapy is usually given for neurosyphilis and epidemic cerebrospinal meningitis, a large part of the subarachnoid space surrounding the cerebral cortex and the greater part of the cerebral ventricular space is at a higher level than the lumbar subarachnoid space. It is therefore to be assumed that the blood serum does not reach the ventricles or cerebral cortex in any great amount, particularly as effort is usually made to introduce the blood serum into the spinal spaces under a comparatively low pressure. On the other hand, serum introduced into the superior portion of the anterior horn of the lateral ventricle should tend to diffuse in the caudal direction because the superior portion of the anterior horn is at a higher level than the lumbar subarachnoid space. In order to reach the base of the brain, the point of election for introduction of serum is the cisterna magna. For therapeutic purposes, blood serum should be introduced as near as possible to the area in which its effects are desired.

ABSTRACT OF DISCUSSION

DR. W. A. JONES, Minneapolis: Would the Trendelenburg position help in carrying out this procedure? Would it cause the fluid more readily to gravitate to the cisterna magna or to the ventricles in the brain?

DR. LEWIS J. POLLOCK, Chicago: I should like to corroborate the observation that in experimental intravitam staining, when the stain is introduced subdurally in the lumbar region, it does not reach any considerable part of the cerebral hemispheres, with the exception of the base. Following the work of Goldmann, Dr. Cluney and I conducted some experiments which impressed us as to the necessity of differentiation between the diffusibility of substances and the organotropic action of such substances. It impresses me that we obtain poor results by the intravenous administration of remedies for the treatment of a certain disease because that substance is not organotropic for the particular tissue we wish to treat, and not because the substance does not find its way readily out of the vascular system. For example, methylene blue diffuses very readily through an animal membrane, and when administered intravenously it stains the brain very well. On the other hand, if we inject fluorescein, which diffuses even more readily through an animal membrane, the brain is not stained, nor is the suprarenal gland, the testicles or ovaries. It is needless to presuppose a separate type of blood vessel for these various organs, or various filters which prevent substances from reaching them. It has been shown by Kite, who worked with the eggs of marine animals and many plant cells and root hairs, that when certain eggs were punctured and immersed in stains, the stain did not penetrate the protoplasm of the cell. It seems to me, therefore, that the most important physical problem dealing with the failure of intravenous therapy is the character of the remedial agent used.

DR. A. L. SKOOG, Kansas City, Mo.: I wish to call Dr. Thompson's attention to the experimental work on dogs which was done about fifty years ago by Quincke, who used cinnabar for the diffusion and then examined the dogs. He found a liberal distribution of the fine particles in the subarachnoid spaces over the entire encephalon and spinal cord. His injections were made at the foramen magnum.

DR. KARL A. MENNINGER, Topeka, Kan.: This paper deserves commendation because the authors have considered a factor which has rarely been touched on, namely, the diffusion rate of the phenolsulphonephthalein. Several years ago I tried precisely the same experiments that Drs. Solomon and Thompson have performed, except that I did not use the drug alone without the serum. I used the serum every time and always obtained the same results that Weston did, and I did not know why. Dr. Thompson has shown very clearly why. Those who have advocated the intracranial treatment of syphilis have never had any better support than Dr. Thompson's experiments give them. At any rate, my own hopes for success in the treatment of optic atrophy and vascular types of disease that do not yield to ordinary forms of treatment are now very much greater.

DR. CHARLES R. BALL, St. Paul: I should like to ask Dr. Thompson whether thus far this method of treatment at the Psychopathic Hospital in Boston has produced any notable results in cases of paresis. In my experience with intraspinal treatment, I have not found that my results in tabes were, on the whole, any better than when I used the ordinary methods of specific treatment. That is, when the arsphenaminized serum was introduced directly into the lumbar region, in which the lesions in tabes are likely to be severe, no better result was obtained. Reasoning by analogy, since paresis has the same type of lesion, and the same causative factor as tabes, the only difference between the two being the difference in location, one might reasonably expect the results to be similar from the same method of treatment. The question naturally arises, if intensive intraspinal treatment does not bring any very decided results in tabes, why should intensive intraventricular and intradural treatment cause any very decided improvement in paresis?

DR. MARY FREEMAN, Perrine, Fla.: I wish that Dr. Thompson would tell us what he thinks about intraspinal injections for tetanus. I gave antitetanic serum intraspinally in the lumbar region in one case, and while the patient had a stormy time, he recovered. I wonder whether we would have had greater chances for success if we had given it higher up?

DR. LLOYD J. THOMPSON, Boston: We mentioned that the Trendelenburg position should be used, especially following intraspinal treatment. Our experiments in vitro showed so remarkably how serum follows gravity that I believe it is a point well worth while. As to intensive treatment, it is a question what is meant by intensive treatment. A year ago we thought that giving a patient an intraspinal injection once in two weeks and an intravenous injection once or twice a week was quite intensive. More than a year ago we started our system of giving a combination of intraspinal, intraventricular and intracisternal treatments within a period of two weeks and keeping it up week after week. In no case did we find that we had to give it up on account of the condition of the patient. So far as we have been handling our cases by what we now know as intensive treatment, our results have been much better than before. The point is, I think, that it depends a great deal on the pathology of the cases being treated. In some cases, intravenous injection seems to do the work as well as any other method could do it, and then a certain group does not do well with intravenous injection and does well with intraspinal treatment. Then there is another group in which we have seen the patients go down hill with intravenous and intraspinal treatments, and then with intraventricular treatments they begin to improve. All we can hope for is to arrest the disease. As yet we should not be justified in saying that we have anything that would cure the disease. As to tetanus and any other condition that is treated with serum intraspinally, I think that these experiments apply there also. Intraspinal injection is, perhaps, to be tried first, although, if time is valuable, it may be well to try the intracisternal route. I feel that in the cisternal treatment we are putting the serum in at the point at which the most good will be done, especially if it is a diffuse condition. The serum will to a limited extent be carried up over the cortex, down in the spinal canal and up to the base of the brain.

THE VALUE OF TEMPORARY COLOSTOMY *

LOUIS J. HIRSCHMAN, M.D.
DETROIT

Diseased or injured limbs and joints respond to treatment most effectively when function is suspended and immobilization is effected. Physiologic rest alone is a valuable therapeutic agent because the organ involved can, so to speak, devote its entire energy to the business of getting well. Unfortunately, many organs, which would be benefited by the complete suspension of activity, are so vital to life that complete rest is an impossibility. "A half a loaf is better than no bread." When one cannot secure complete cessation of functional activity, a minimum of function must suffice. Fortunately, the colon can be completely excluded from functional activity, and in the treatment of various pathologic conditions which affect it, relief and cure can often be effected by a temporary interference with its activity.

Enterostomy and colostomy are both being utilized with increasing frequency for temporary purposes. The number of lives saved yearly by the employment of temporary enterostomy in cases of postoperative ileus must run into considerable figures. The prolongation of life and increased comfort in incurable conditions of the lower bowel, and complete relief from many infective diseases of the colon made possible only by temporary colostomy, is evidenced by its increasing employment in recent years. While colostomy is a surgical procedure, perhaps its employment in the treatment of colonic disease offers as much promise to the internist and the gastro-enterologist, in the successful treatment of disease of the large intestine, as to the proctologist.

All forms of chronic colitis, whether the infective agent be bacterial or ameboid, or both, are characterized by two principal symptoms. These two symptoms are evidence of the attempt on the part of the organism to rid itself of irritating material, and accompany practically all diseases of the colon. These are evidence of increased physiologic activity of the colon, and are (1) hyperperistalsis and (2) hypersecretion.

Anything which irritates the colon, whether it be acrid and undigested food material, the inflammation produced by bacterial or ameboid activity, or the ulceration or deformity which come in the later stages of this type of colonic disease, will call on this organ for increased peristaltic activity in the endeavor to expel the undesirable occupant. In chronic disease, an atonic condition will supervene; the bowel musculature loses its tone; destructive processes extend with greater freedom; permanent loss of function, chronic invalidism, and ultimately death follow as a natural sequence unless prompt and efficient remedial measures are undertaken. It makes no difference whether the infection is syphilitic, tuberculous or dysenteric, the result of metallic or food poisoning, or the simple ulcerative type; suspension of physiologic activity, in addition to the administration of specific measures or remedies by hypodermic, internal administration or local application is of prime importance.

Patients of another large class, those suffering from the later manifestations of specific diseases, strictures, complicated fistulas, and neoplasms of either benign or malignant nature, are often converted from incurable to curable by the employment of temporary colostomy before the indicated major surgery is carried out. Temporary colostomy is also of distinct value in the treatment of malignant growths, which appear inoperable, and when radium or deep high-voltage roentgen-ray therapy is employed. Not only is the temporary suspension of physiologic activity of great assistance in the treatment of diseases of the colon, distal to the colostomy, but this artificial opening offers an opportunity to irrigate the diseased organ from above downward.

The administration of colonic irrigations by means of the rectal tube is merely of fractional value. The solution, passing up into and through the diseased portion of the rectum and colon, carries with it the products of disease. On the return flow and expulsion of the solution, much of this material remains in the cecum and along the walls of the colon, and continues to infect, irritate and inflame its walls.

A great step in advance was made in colonic irrigation when appendicostomy and cecostomy were first performed, and irrigation from above downward was successfully accomplished. Partial physiologic rest was thus obtained, and a much more thorough cleansing of the diseased bowel was procured. While the feces were not prevented from passing through the diseased portion of the canal, they were so diluted by the irrigating solution that they were not nearly so irritating. Many types of colitis were entirely cured by this method when combined with the indicated medicinal and dietetic therapy. When the patient, however, is rapidly losing ground and becoming anemic from the continual loss of blood from diseases such as chronic ulcerative colitis, colonic polyposis and amebic dysentery, on the one hand, and from the systemic effect of infective and suppurative conditions, such as ulceration combined with stricture, multiple fistulae of the lower colon communicating with other organs, such as the bladder, vagina, tubes or appendix, or multiple diverticulitis, the organ must be given as near absolute rest as possible. This can be accomplished only by enterostomy or colostomy well above the diseased area.

The point of election for the artificial anus can be determined only after a thorough roentgenologic study of the gastro-intestinal tract, corroborated by surgical examination through a laparotomy wound. All things being equal, an abdominal incision, through the rectus muscle on either side of the median line, should be made for exploratory purposes, and either this or, more rarely, a second wound should be used for the colostomy.

The question of anesthesia for the performance of temporary colostomy is an important one. Patients suffering from chronic diseases of the colon are not, as a rule, ideal patients for abdominal surgery. They are usually debilitated and suffering from disturbed nutrition, and their resistance is markedly subnormal. They are particularly prone to complications resulting from anesthetic accidents when ether is employed. If, in the surgeon's judgment, complete surgical narcosis is deemed absolutely necessary, the use of gas and oxygen combined with local anesthesia is much to be preferred to ether. In my practice I find it rarely necessary to employ general anesthesia for the per-

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formance of temporary colostomy. My preference is for the use of local regional anesthesia produced by the infiltration of 0.5 per cent. solutions of either apothesin or procain. This is not combined with epinephrin, as I find no reason to add this drug to secure perfect anesthesia.

One hour before the time selected for operation, the patient is given from a quarter to a third of a grain of morphin sulphate, combined with from $\frac{1}{150}$ to $\frac{1}{100}$ grain of scopolamin hydrobromid. The administration of this combination induces a state of mental calm and dispels the anticipatory anxiety and dread of a surgical operation, and assists in no small degree the relaxation of the parts produced by local anesthesia. The quantity of anesthetic solution is of relative unimportance. The only criterion used is infiltration sufficient to produce complete nerve block. No solution is injected into or between the layers of the skin, but the needle is introduced underneath the skin so that we have a true subcutaneous and not a subcuticular or intradermal infiltration. It is the latter type of injection, and the use of epinephrin, which is responsible for the skin slough, which has been unjustly attributed to anesthetic agents.

An area from 1 to 2 inches wide and 6 inches long is infiltrated down to the fascia. This, in turn, is punctured and infiltrated for the same length. Then after from three to five minutes, all tissues are divided down through the fascia. The underlying muscles are then thoroughly distended with anesthetic solution, and after a short pause the fibers are incised or separated by blunt dissection and the peritoneum is exposed. The hypodermic needle is inserted between the layers of the peritoneum, and the line of proposed incision is infiltrated. The peritoneum is opened in the same manner as under general anesthesia, and retracted. The assistants must bear in mind at all times that the patient is not asleep or under general anesthesia, and all unnecessary conversation, noises and handling of tissue are strictly enjoined. Unnecessary trauma to tissues is avoided under local anesthesia, and the patient is thereby the gainer.

Examination of the abdominal viscera can now be made. The colonic lesion is then located, and the portion of the colon well above the diseased segment is delivered outside the wound. If there is any evidence of pain on handling the colon, the mesentery below the part grasped should be infiltrated with the anesthetic solution, after which it will be found that it can be freely and painlessly manipulated. The mesentery is perforated with blunt forceps, and a thick-walled rubber tube, not larger than a lead pencil, is drawn through to act as a support for the bowel on the abdominal surface. It is not necessary or advisable to suture the skin, fascia or peritoneum to the bowel, as adhesions will form within a few hours between the cutaneous abdominal surfaces and the bowel wall.

It is my practice to place the exposed loop or colon as high in the wound as possible, so that it may be well out of the way in the event of further abdominal surgery for the removal of colonic disease in the pelvis, colon or rectum. The abdominal wound below the colonic loop is sewed in layers, and the skin closed with clips. The parts are dusted with zinc stearate powder, pads are applied under the ends of the supporting rubber tube, a dressing is applied, and the patient is returned to bed until the bowel is opened forty-eight hours later.

The whole operation is performed in from ten to fifteen minutes, and the patient is able to continue his nourishment without interruption. There is practically no postoperative pain, and the patient shows no reaction and gains several days over the one who had the same operation performed under general anesthesia. If, at any time during the operation, conditions arise which prevent its completion under local anesthesia, a short period of gas anesthesia will help out. This occurs, however, in only a small percentage of cases.

If one wishes to divide the spur of the colostomy by pressure necrosis at the time of bowel closure, then it is necessary to sew the two loops of the bowel together at their mesenteric attachment for 3 or 4 inches. However, we find it unnecessary to do this, as when the time for closure arrives it may be done extraperitoneally by simple invaginating sutures under local anesthesia, or without any anesthesia whatever.

After the bowel has been closed, it is dressed with dichloramin-T solution for four or five days. When healing is complete and the wound proved sterile by bacterial examination, the peritoneal cavity is opened under local anesthesia, the bowel replaced, and the wound closed by layers.

In quite a number of patients the simple suspension of peristaltic activity, through the employment of temporary colostomy, has been all the treatment required for permanent relief. In major surgical procedures on the distal portion of the bowel, such as resections, removal of neoplasms and operations for extensive fistulas, the creation of a comparatively clean field in which to work, and the physiologic rest afforded by temporary colostomy, has meant the difference between life and death.

Its more frequent employment is urged in the treatment of inflammatory and infectious diseases now treated medically as "colitis." Temporary colostomy, as a step in the surgical treatment of severe injuries, neoplasms and fistulas, is now almost universally employed in many clinics. The time for halfway medical measures, enemas and colonic irrigations, has passed, and the treatment of chronic and severe colonic diseases will be materially improved by physiologic rest and direct treatment and irrigation afforded by the more general use of temporary colostomy.

The employment of local anesthesia has robbed this operation of much of the risk inherent in etherization, has placed it among the list of safe surgical procedures, and has made it a life-saving measure of the greatest value.

ABSTRACT OF DISCUSSION

DR. ALOIS B. GRAHAM, Indianapolis: As to the value of a temporary colostomy, I agree with all that Dr. Hirschman said. Any surgical technic or procedure which will place a pathologic area at practically complete physiologic rest, which will inhibit infection, control hemorrhage, improve appetite, add weight, and convert what was previously a relatively poor or bad surgical risk into a comparatively safe surgical risk, should command the attention of all good surgeons. This is the possibility of a temporary colostomy.

DR. SAMUEL G. GANT, New York: No subject in our field is of more value than temporary colostomy, although it is not new. There are many conditions in which I perform it, sometimes preceding an excision of the rectum and for polyposis; but in the majority of cases it is done for relief of inflammatory conditions in the intestines complicated by ulceration and excessive discharges. I do not think it makes much difference what organism is the cause; the inflammatory processes pave the way for mixed infection, and

eventually there is destruction of the mucosa and surgical diarrhea. I try to classify these conditions into moderate and severe cases of colitis. If a moderate case, I treat it by rest, diet, medication and rectal irrigations. If there are quite a number of stools containing considerable blood and pus, then I employ appendicostomy or cecostomy. When the condition is an extensive mixed infective colitis, the submucosa riddled with ulcers, etc., then it is essential to put the intestine at complete rest, and in these cases I prefer a colostomy or cecostomy. However, in certain conditions we have to do as Dr. Hirschman has suggested, viz., perform colostomy instead of cecostomy. I do not believe in the treatment of these cases by ileostomy because the patient suffers from frequent fluid stools and excoriations of the skin surrounding the opening. The artificial anus must be made according to the location of the lesions. But putting the bowel at rest and employing frequent irrigation, one can cure a great many cases of chronic colitis which otherwise would end in death. The operation has a decided field, and, as a rule, can be performed under local anesthesia, for the reason that the bowel is superficial, and there is no pain in handling it when one can bring it up without much traction. Of course local anesthesia is not effective when one must pull on the mesentery. In this class of affection I think if one studies cases and employs temporary colostomy when indicated, the operation will be found serviceable. The bowel can be left open one, two or three years, and then the opening closed without atrophy or damage to the intestine. Formerly I believed that if a person did not use the bowel for a considerable time it would not function again, but such was not so in several of my cases.

DR. SIDNEY K. SIMON, New Orleans: It seems to me that the operation of colostomy advocated by Dr. Hirschman represents the last step in the therapy of colonic conditions. I can easily understand that from the proctologist's standpoint this measure demands more than it would from the purely medical side, because the proctologist sees the extreme cases, after they have passed through the hands of the medical man. I take issue with Dr. Hirschman in several respects. First of all, I object somewhat to grouping the various etiologic factors of colitis under one heading, and claiming, as he apparently does, that the treatment is surgical. Certainly, in the amebic infections of the colon there rarely arises an occasion for surgical intervention. The use of specific therapy along well known lines has in my own experience obviated the necessity for surgical intervention. In the purely bacterial infections of the colon, frequently the patient is allowed to drift because of lack of proper appreciation on the part of the attending physician of the probably serious nature of a simple colitis. The patient is treated along the usual lines with a very moderate degree of attention, and from a simple infection of the mucosa the condition pathologically is allowed to advance below the mucous membrane, affecting the musculature so that eventually the bowel becomes a fixed, nonperistaltic organ, allowing the feces as it comes through the ileocecal valve to gravitate toward the descending colon and rectum without any peristaltic control. When once that condition has come about, when peristalsis is to a great extent annihilated, then and only then in my opinion should surgical intervention be resorted to. However, prior to advising surgical intervention I should employ lavage. A solution which has proved of benefit in this class of cases is methylene blue or gentian violet used as a flush of the colon from above downward. Within half an hour, after 50 c.c. has been introduced, the fluid finds it way through the colon, and one gets in effect a complete washing out of the colon from above downward which has practically the same effect as a cecostomy opening.

DR. ALFRED A. STRAUSS, Chicago: I am heartily in accord with the ideas of Dr. Hirschman regarding colostomy, but in the severe forms of ulcerated colitis ileostomy has many advantages over colostomy. In many of these cases the pathologic changes extend into the cecum and even into the appendix, and it is much more difficult to put the bowel at absolute rest with a colostomy than with an ileostomy. I am highly in favor of doing these operations under local anesthesia, because the patient's condition is usually very poor. In doing an ileostomy, by making a knuckle of the ileum and then opening the ileum transversely, the entire colon will be put at absolute rest. These operations are usually done as a last resort. The patient, as a rule, has been under the care of an internist for one or two years, and since the patient is either no better or is markedly worse, surgery is resorted to. This is a serious mistake. The operation should be done early in the disease before marked pathologic changes have occurred in the colon, changes which are found to produce cicatrization and stenosis. Besides, the patient is in much better condition, and recovery is that much quicker.

The result from ileostomy in these chronic ulcerated colitis cases is nothing short of wonderful. Patients can be treated through the ileostomy by irrigations with various solutions, which in many cases aids considerably in addition to the rest the colon gets from the ileostomy. In these severe forms of ulcerated colitis, repeated blood transfusions, one before and one after operation, are of the greatest aid to the patient, and reduce the operative risk about 50 per cent. In addition to that, for five or six days after the operation, I have given 1 quart of 5 per cent. glucose solution intravenously daily. As to the operative procedure, in spite of definite roentgenray findings, it is best always to make a small midline incision below the umbilicus to inspect the colon. Ileostomy or colostomy should be done through a separate small gridiron incision, and the midline incision closed. One of the great advantages of ileostomy over colostomy is the absence of the colon bacillus odor from the intestinal discharge.

DR. JOHN L. JELKS, Memphis, Tenn.: I believe that some of us are not quite clear as to the proper terminology of some of the procedures mentioned. In the first place, if I should speak of colostomy, I should mean something independent of the appendix. If I were to speak of an appendicostomy, I should refer to an operation which means picking the appendix up and using it as a nozzle through which to irrigate the colon. If I were to mention appendicocecostomy, I should mean the operation here described—that of fastening the cecum against the abdominal wall and using the opening where the appendix had been removed. Dr. Gant speaks of pain. I do not believe it is advisable to wait for that symptom, because there will be pain when the cecum is pulled up. I should prefer to use a little procain previous to operation. Anticipating an operation of this type, I much prefer using morphin sulphate, three doses, before the operation is started, in order to get the patient in a fairly comfortable condition. I have seen colostomy performed to put a colon at rest which meant simply the opening of the colon and allowing the fecal material to come out. But if the colon is to be put at rest, one has to exclude; therefore one must close the distal part and set it apart from the proximal part. Dr. Simon states that this procedure is rarely indicated in amebic infection, but that well known lines of medical treatment should be followed. I believe I have seen as many amebic cases as any man in this country, and I know that when the appendix and cecum are involved, and the appendix has in it amebic cysts which one cannot get at, one is not going to cure that patient by any medical procedures whatsoever. Also, one may fail to find amebas in the stools of patients to whom emetin has been given by the colon. I never give less than 1 grain of emetin at a dose, when I give it at all. I have given bismuth in one, two or three heaping teaspoonsful doses, three or four times a day. Some men claim that they cure patients with 10 grain doses. I cannot do it. The amebas inhabit the colon, not the ileum, and there is no need of an ileostomy to cure a disease that does not involve the ileum or the small intestine. However, I agree with Dr. Simon as to the method of treating these patients by the use of various irrigants. I am especially partial to gentian violet solutions. I hope that we shall get better solutions for getting rid of these intractable infections. In transfusing, I use the citrate method.

DR. ANTHONY BASSLER, New York: I feel that in the strictly medical conditions of bacterial infections with ulceration and infiltration in the colon, cecostomy or other surgical procedure may, in a very few instances, be required. In my experience the method mentioned by Dr. Simon has been perfectly satisfactory. Up to three years ago, the routine procedure was cecostomy and appendicostomy, with irrigations

kept up for several months, and we had not a few patients return after a year or two with the original symptoms and often with the fistula closed, when he had to reoperate. Now practically none are operated on, and the results from medical treatment are quite as good. For irrigation I use the hypertonic solutions. To these is added gentian violet, which is kept up for weeks and months. I have used other dye solutions, but the gentian violet is now used most often. During the last three years in cases of dysenteric infections, through all the grades of *B. coli* and the streptococcic infections, by persistent medical treatment only, I have achieved results which I feel are quite as good as those obtained from the operative procedures of former years; in fact, much better. When, however, it comes to malignant disease, or granulomatous diseases, such as tuberculosis and syphilis, I think that the cases must be considered surgical at the start and then perhaps medical, as Dr. Hirschman suggests.

DR. GRANVILLE S. HANES, Louisville: I want to call attention to one feature in the technic of doing colostomy, and especially when it is done with the view of treating a pathologic condition in the lower segment. It formerly was advised that when the sigmoid was brought up through the abdominal wound, the bowel should be pulled down and made tight from above, leaving the redundant part below. Just the converse should be done. The redundant part of the sigmoid should be left above the colostomy opening in order that it may serve as a reservoir for the material as it comes down, with the result that in many cases the patient has a movement every morning just as before there were any pathologic changes. Then, especially in cases of carcinoma, if necessary to introduce radium, this becomes entirely possible, while with the redundant part of the intestine below the colostomy it is impossible to introduce it. Therefore, not alone from the standpoint of introducing an instrument into the lower segment of the intestine for the purpose of making local applications of any kind or applying radium, it also serves as a reservoir for fecal material. Again, I would call attention to the fact that it is possible to do colostomy easily in only two portions of the intestine. These are the transverse portion of the colon and the sigmoid. Other portions of the large bowel, except the cecum, usually have mesenteric attachments so short that they cannot be delivered through the abdominal incision.

DR. L. J. HIRSCHMAN, Detroit: I merely offer the operation of temporary colostomy to those who are surgeons but who are treating cases medically, as a method of very decided assistance to them in shortening the period of treatment. In the treatment of infective conditions of the colon, a great deal of time can be saved to the patient with the performance of a colostomy and its closure under local anesthesia. It is one of the most conservative operations one could advise. Every surgeon has found that a temporary colostomy often gives permanent relief in a condition which he thought would require more radical measures. In regard to the question of using this method to assist in the treatment of amebic dysentery, Dr. Jelks has answered that. I have found it of service in late cases of dysentery. With reference to the location of colostomy, we must be guided by the lesion in the individual case as to whether we shall do an ileostomy, a high or low colostomy, or what portion of the intestine shall be used. My experience shows that most of these conditions do not involve the entire colon, and many times we have been able to select the part that Dr. Hanes has mentioned, the transverse and sigmoidal portions. In many cases in which I previously would have thought ileostomy was necessary, I have found that colostomy answered the purpose. Dr. Hanes has mentioned the question of drawing the upper segment of the bowel taut. This depends on conditions. If one wants to pull up the intestine in order to form a reservoir, well and good. But if later one has to excise a carcinoma or other lesion, then it is well to leave as much intestine below the colostomy as possible in order to have good material with which to make an anastomosis. So far as impeding peristalsis is concerned, my experience has been exactly the opposite. I have found that, with convalescence, peristalsis is increased if anything.

AN ANALYSIS OF FOURTEEN CONSECUTIVE CASES OF SPINAL CORD TUMOR*

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AND
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PHILADELPHIA

We present this critical analysis of a series of fourteen consecutive cases in the hope that the emphasis which we lay on certain diagnostic phases may lead to an earlier diagnosis in spinal cord tumors and, as a result, to the consideration of surgical therapy before cord degeneration—the inevitable consequence of delay—has deprived the patient of relief from crippling deformities. Whatever the cause, the fact remains that in this series the final diagnosis was not established until an average of two and a half years had elapsed from the date of the initial symptom.

While tumors of the spinal cord are less frequent than brain tumors in the ratio of one to six, the proportion of operable tumors of the cord from the standpoint of localization and feasibility of exposure and

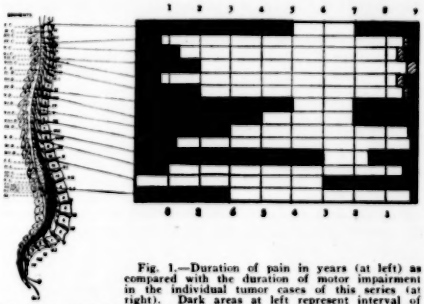

Fig. 1.—Duration of pain in years (at left) as compared with the duration of motor impairment in the individual tumor cases of this series (at right). Dark areas at left represent interval of time from beginning of pain. Dark areas at right show duration of weakness of legs; shaded areas, weakness and atrophy of arms.

removal is far greater. In twelve of our fourteen cases the tumor was accurately localized, accessible, well encapsulated and distinctly an operable lesion.

DIAGNOSIS

Fully cognizant of the fact that occasionally spinal cord tumors run a painless course, in this series in thirteen out of fourteen cases not only was pain a conspicuous symptom, but in each of these thirteen cases it was the first symptom. There are other important lessons to be learned from this pain phenomenon. While in later stages pain may be referred to a more widespread distribution, the original pain zone continues throughout the course of the disease and is therefore an important localizing sign when the time comes to determine the seat of the growth. The physician might be misled by the occasional remission, as often happens, and interpret these remissions as responses to the treatment he may have inaugurated.

Of interest, too, is the length of time which elapses between the onset of pain and the first signs of motor impairment. In four, or one third of the cases, three

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or more years elapsed, and in three, or one quarter of the cases, approximately two years elapsed (Fig. 1).

We have dwelt on the pain phenomenon and viewed it from various angles because of its outstanding importance as a warning signal in spinal cord tumors and

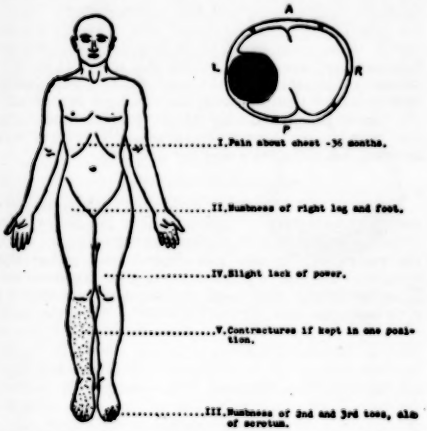
A
L
R
P
I. Pain about chest - 36 months.
II. Numbness of right leg and foot.
IV. Slight lack of power.
V. Contractures if kept in one position.
III. Numbness of 2nd and 3rd toes, skin of scrotum.

Fig. 2.—Usual sequence of symptoms in tumors of the spinal cord. The tumor involved segments T 3-5.

because it was the one symptom which proved the misleading factor in the mistaken diagnoses which had been made previously in almost all our cases. Not only are erroneous diagnoses made but also many needless operations are performed, especially when pain is referred to the upper or lower quadrant of the abdomen. According to the location of the tumor, the most common diagnostic errors are:

Pain associated with movements of the neck: Pott's disease.
Pain referred to the shoulder: rheumatism.
Pain referred to the shoulder and arm: neuritis.
Pain referred to the precordium: angina pectoris.
Pain referred to the upper abdomen: gallstones.
Pain referred to the lower abdomen: appendicitis.
Pain referred to the lower extremities: sciatica.

Given a case with pain of definite localization, aggravated by movement, coughing or sneezing, and persisting, with occasional remissions, without variation except in degree, in the original territory for months and especially for longer periods, one should at least have in mind the possibility of a spinal cord tumor and be on the lookout for further confirmatory evidence.

While pain with one exception was present in all our cases and invariably the first symptom, subjective sensory disturbance was invariably the second symptom. These paresthesias are variously described as a sense of numbness or sleepiness in the limbs, itching, tingling, and a sense of constriction about the limb or trunk. There is, however, a distinction in the distribution of pain and paresthesia in that pain, a root phenomenon, is always referred to the same side as that of the lesion, while the paresthesia, a cord pressure symptom, may be homolateral, contralateral or sometimes bilateral.

One must not be misled by the absence of the typical Brown-Séquard syndrome. In the classical description of the clinical course of spinal tumors there are three cycles: the cycle of root pain, the Brown-Séquard cycle and the cycle of motor and sensory paralyses. The sensory disturbances are extremely variable, of course, depending on the duration of the lesion and its location with reference to the cord; but it is worthy of note that in not one of our series was there a typical Brown-Séquard picture.

Motor disturbances were present in each of the fourteen cases in greater or less degree, according to the size and location of the tumor. In only two of the series was there a disability of the upper extremity, and of the remaining twelve cases, in one half both lower extremities were involved and in one half only one lower extremity. It might be mentioned in passing that, while the root pain persisted for an average of two and a half years, it is not until the appearance of motor impairment that the patient finds his way to the neurosurgical clinic. These motor disturbances begin often as awkwardness in movement of hand or foot; the patient experiences difficulty in handling objects, or stubs the toe in walking. Spasticity is always a forerunner of weakness or paralysis, and in most cases the difficulty in locomotion is due to the spasticity rather than to muscular atrophy. In only three cases was the spastic paraplegia advanced to the stage of complete disability.

The sequence of symptoms in their chronological order is pain, paresthesia and paralysis; and the fact that this sequence is so uniformly expressed in our series is not a matter of coincidence but may be explained on the basis that the vast majority of spinal cord tumors are situated lateral to the cord, either anterolateral or posterolateral. Of the fourteen tumors, only one occupied a position anterior to the cord; nine were on one side or the other; and, of the three which at the time of operation were mostly posterior, two originated near the intervertebral foramina (Fig. 2).

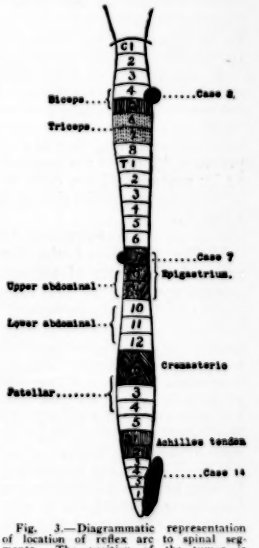

Fig. 3.—Diagrammatic representation of location of reflex arc to spinal segments. The position of the tumor is indicated in three cases in which localization was assisted by absence of an individual reflex. Case 2, right biceps absent, left biceps present, right and left triceps exaggerated; Case 7, abdominal reflex absent; Case 14, Achilles tendon reflex and Babinski reflex absent.

Too much stress must not be laid on the presence of a spinal block. It is a late rather than an early symptom. Xanthochromia was present in only five cases, and in those the duration was five, three and two years. The Queckenstedt or Ayer test for a spinal block should be applied in all cases, and may reveal a block before

xanthochromia appears. At all events, a positive finding by either method should be regarded as only of confirmatory evidence, since negative findings do not preclude the existence of a tumor, and positive findings, it should be remembered, have been noted in lesions other than tumors.

SEGMENTAL DIAGNOSIS

Once the presence of tumor is presumed, its accurate localization is an essential preliminary to exploration. In the order of their importance we have found the following of the greatest assistance: (1) level of sensory loss or impairment; (2) point of referred pain; (3) sympathetic phenomena; (4) absent reflex; (5) muscular atrophy. In eleven out of fourteen cases, the level of the lesion was determined chiefly by the level of sensory loss or impairment; referred pain was present in all but one; the ocular phenomena were present in every tumor from the fourth cervical to the third thoracic segment. An absent reflex was a determining factor in three (Fig. 3). In two high cervical lesions there was impairment of the movement of the diaphragm.

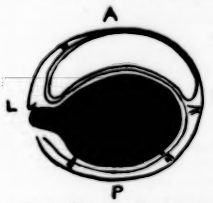

Fig. 4.—Diagrammatic representation of a tumor posterior to cord. The first symptom was one of motor impairment, showing effect of indirect pressure.

It is a matter of little consequence, once the segmental localization is established, whether the tumor is intradural or extradural, or what its position is with relation to the cord. The symptoms are easily misinterpreted, since they may be elicited by direct or indirect pressure, by direct pressure of the tumor on the cord, or by pressure of the cord on the wall of the spinal canal directly opposite that of the location of the tumor (Fig. 4).

SURGICAL ASPECTS

Unlike tumors of the brain, the exposure and removal of tumors of the spinal cord present rather elementary surgical problems. This generalization applies to the extramedullary tumors so commonly a definitely encapsulated growth of necessarily limited dimensions, usually an endothelioma, and not to the intramedullary glioma (Fig. 5), which we consider an inoperable lesion. There were no intramedullary growths in our series, and in but one of the series was the removal of the growth difficult. In this case we were dealing with a tumor, two thirds of which was within the intracranial cavity; and had it not been for the fact that the respiratory act was sustained alone by one half of the diaphragm, its removal could have been accomplished. At is was, there was a respiratory breakdown during the operation, and attempts at resuscitation proved unavailing. This and one other, in which death was due to embolism, were the only fatalities.

There are two points in technic to which reference may be made. When mistakes are made in the attempt to expose the tumor, the opening in the spinal column is invariably too low, and to find the tumor the operator must enlarge the opening upward. To avoid this error we recommend this rule: The level of the lowest lamina to be removed should correspond with the location of the segment representing the highest level of sensory loss. In every one of our operations the tumor was exposed in the opening as originally planned; in one instance part of the tumor extended beneath the lamina just below our opening.

The second point has to do with the prevention of recurrence. Endotheliomas grow from the spinal meninges, and in most instances one can readily see at the operation the point of origin, usually on the lateral aspect of the spinal canal, often near the intervertebral foramen and sometimes within the canal (Fig. 6). Therefore, in removing the tumor, the operator should remove with it that portion of the meninges from which the tumor originated. Up to the present time there has been but one recurrence; a second operation was advised, but our advice was not accepted.

FUNCTIONAL RECOVERY

Recovery of function is a matter over which the surgeon has no control. Assuming that the tumor was removed, as it should be, without traumatizing the cord, the return of function will depend on whether the symptoms are due to pressure or to cord degeneration. If to the former, functional recovery will be complete; if to the latter, more or less restricted. When due only to pressure, paralysis and sensory and motor function recover surprisingly promptly, even when the tumor has been present for several years. Within a few days of the operation, function, first sensory, then motor, reasserts itself; and, as in one of our cases with an advanced spastic paraplegia, the patient was able to walk in three weeks.

Fig. 5.—Drawing made at operation showing rather characteristic appearance of an intradural endothelioma.

There were but two cases in our series in which there was absolutely no return of function. In one of these, in which the tumor was of five years' duration, the prognosis was forecast by the degenerated appearance of the cord. In the other, the appearance of the cord was normal. As Patrick suggests, the possibility of multiple tumors must be borne in mind.

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ABSTRACT OF DISCUSSION

DR. M. A. BLISS, St. Louis: Did Dr. Frazier fail to find a tumor in cases which presented a typical Brown-Séquard syndrome? I have seen such cases, but the symptom level rose higher in the cord after operation. Did a cyst of the cord appear in any of his cases? In one such case we had brilliant results, with return of sensory function in a few days and return of motor function within a month, and with restoration from a totally paralyzed state, to walking. A year later, recurrence showed epithelioma.

DR. JULIUS GRINKER, Chicago: I had an experience with a case of spinal cord tumor which leads me to believe that Dr. Frazier need not despair of recovery in some of his operative cases. In that case an operation was done, and for fully a year and a half there was not a sign of improvement, the patient being completely paraplegic. Then, to our surprise, the nurse noticed that one great toe began to move, and from that time on there was gradual improvement, and within another year and a half the patient had recovered sufficiently to walk with assistance. I have no doubt that there are cases in which recovery does not occur, but we should never despair, for that recovery may eventually take place. I cannot explain why in some cases improvement should be so long delayed.

Fig. 6.—Diagrammatic representation of tumor, showing the relationship of tumor to cord. Note that while the major portion of the tumor is posterior, the lateral extension represents its point of origin.

DR. F. E. COULTER, Omaha: What has Dr. Frazier's experience been relative to trauma acting as an etiologic factor?

DR. LEO M. CRAFTS, Minneapolis: I recall the case of a farmer who, while a group of men were lifting a section of barn floor, reached under it; the workmen accidentally let the section down on him, doubling him over very sharply. When released, he had a sense of discomfort and pain all about the midbody. This feeling continued. A few months later he had developed a typical picture of cord tumor. A laminectomy was done in the middorsal region, and a hypernephroma was found extradurally, postlateral, toward the right. He had a complete paraplegia which showed no improvement for six months or more; then he began to improve, and continued to gain until he had fairly good use of the legs. Some months later the picture recurred and progressed. It would seem that unquestionably trauma was the etiologic factor.

DR. A. W. ADSON, Rochester, Minn.: Dr. Frazier emphasized an important point in stating that pain is a very valuable sign. The tendency has been to wait until the patient developed a level sign in addition to pain, that is, loss of pain, tactile and temperature sensibilities, before we felt free to make a diagnosis of cord tumor. In reviewing 112 laminectomies which were performed at the Mayo Clinic for cord tumor, I find that fourteen were situated extradurally, thirty intradurally but extramedullary, and thirty-one intramedullary; in twenty-seven instances a tumor was not found, the condition being chronic meningomyelitis. In four of this group, tumors were found later—three cases of varicose veins of the cord, two tuberculomas, two gummas, one echinococcus cyst and two cerebellospinal tumors. Root pain was present as a symptom in eight of the extradural group, in twenty of the intradural group, and in twenty-two of the intramedullary group. Of the group in which no tumor was found, pain was present in thirteen patients. This is evidence that pain is a very valuable symptom. During the past year we have explored and removed four tumors from patients who had no sensory loss and who presented a history of pain without any other symptoms, which is significant of pain being an important and valuable sign. When a patient complains of pain, which is aggravated by stooping, coughing, sneezing and when lying down, which is relieved by getting up and walking about, and not by usual remedies, when the pain is in the sciatic nerve, the possibility of cord tumor must be borne in mind.

DR. HUGH T. PATRICK, Chicago: Was any motor loss manifested in those cases in which there was no sensory loss?

DR. ADSON: No, there was no motor loss. One patient stated that for two months he did develop a little patch of anesthesia over the lumbar nerve, but he came primarily for pain and was at first treated for sciatica.

DR. PATRICK: I was surprised that Dr. Frazier's table showed only one case in which pain did not antedate motor loss. I have no statistics to present, but I feel quite sure that my cases show a fair proportion in which motor impairment came before pain. Possibly in interpreting just what pain is, Dr. Frazier and I may have a little different attitude. Any patient who is spastic (and there are many patients with motor impairment who are spastic) will spontaneously make the statement that he has a pain in the back or between the shoulders or below the small of the back, which, like many other statements of patients with reference to pain, may be shown to be not pain at all in the proper sense; that is, these patients have a distressing sensation, and in their vocabulary a disagreeable or uncomfortable feeling is called pain. This sensation in spastic patients is frequently due to the spasticity—the muscular tension in the muscles of the back. In my opinion that is to be distinctly distinguished from anything like a root pain or pain due to any sort of nerve encroachment. Relative to multiple tumors of the spinal cord, which condition has been one of the disappointing and perplexing features of two of my cases, I should like to ask Dr. Frazier whether he has had tumors which were at first, microscopically and macroscopically, supposed to be the ordinary endothelioma, and later proved to be gliomatous. One patient was operated on with success. There was a recurrence, and we operated the second time with almost as brilliant a result. A third operation was done after recurrence of symptoms, but the surgeon reported that the cord had become infiltrated with a growth and no operation was possible. However, for a long time afterward the patient did very well under roentgen-ray therapy. Dr. Frazier informed me that his one patient who showed no pain at any time was another case in which I failed to make the diagnosis. Fortunately, however, she eventually landed in the hands of Dr. Frazier and Dr. Spiller, who did make a diagnosis. When I examined her she had absolutely no pain, as she informed me she had not subsequently. She had no sensory loss of any sort. She had a spastic paraplegia of moderate degree, was serologically negative, and the spinal fluid showed no indications of tumor. As most such cases in young persons (this was a relatively young woman) eventually turn out to be multiple sclerosis, I supposed she had that disease. I did not have the opportunity of following the case, and consequently had the discomfort of knowing that I had not diagnosed it properly. But I had the comfort of knowing that after operation she made a brilliant recovery.

DR. CHARLES H. FRAZIER, Philadelphia: What Dr. Patrick said in regard to the possibilities of misinterpretation of the symptom of pain is very significant. No doubt there may have been cases in my series in which what we termed pain or what the patient thought was pain was not the pain of a root phenomenon. Yet, it is rather significant that the location of pain was found to be constant throughout the history of the case, and was always helpful in diagnosis. I do not think that Dr. Patrick ought to take himself to task for not having made an accurate diagnosis in the case to which he referred, and in which I subsequently operated. He saw the patient at a very early stage of the disease, while I saw her at a late stage, when there was an indefinite level of impairment. And I think it is only fair to Dr. Patrick to make this acknowledgment, that in this case I was unwilling to commit myself, and told the family of the patient the lesion might be of three possibilities: an intramedullary tumor, an extramedullary tumor or a myelitis. I was quite sure of the level of the lesion, but not of its nature. But since the symptoms were progressive and the patient totally disabled, we felt that an exploratory operation was justified. We found an extradural tumor, which was readily removed. Dr. Bliss has asked a pertinent question: Whether or not we have failed to find tumor in cases which presented a typical Brown-Séquard syndrome. I cannot answer this question as accurately as I would like to do because I have not the details of all the cases in mind. However, I recall one case in which the symptoms of cord tumor, including the Brown-

Séquard syndrome, were very definite, when we failed to find any evidence of tumor at the exploratory operation. The patient died about a year later, but unfortunately we were unable to secure a necropsy in that case. Most of the cases in which we failed to find a tumor, at the exploratory operation, are those in which there was not a definite level of sensory loss. Referring to the case cited by Dr. Grinker, I was surprised to hear that recovery of function had been deferred a year and a half after operation. When symptoms are due to pressure alone one would expect recovery of function to be rather prompt and rapid. When symptoms are due to degenerative changes, we would not anticipate recovery of function at any time. As to the relation of trauma to cord tumor, I have no knowledge. In one of the cases of this series there was a very definite history of trauma. However, no particular significance was attached to it. I think it is interesting to note that sometimes those who practice manipulative therapy help to make the diagnosis. There were two cases in our series in which great aggravation of symptoms followed immediately on the institution of such treatment.

INTRACARDIAC SURGERY—A NEW METHOD

PRELIMINARY REPORT *

DUFF S. ALLEN, M.D.
AND
EVARTS A. GRAHAM, M.D.
ST. LOUIS

The purpose of this paper is to describe briefly a new surgical procedure for intracardiac operations. Heretofore, no method has been described by which it is possible to go into the cavities of the heart without haste, to examine its chambers carefully, and to operate with deliberation on the interior of the heart under guidance of the eye. We have been able to do this while the normal flow, or nearly normal flow of blood was taking place through the chambers of the heart. The blood supply to the body and to the heart itself was maintained throughout the operation. Great speed of execution, therefore, was not imperative. We have repeatedly looked into the cavities of normal hearts of etherized dogs for as long as twenty minutes with impunity.

The primary object of our experimental work was to develop a practical surgical procedure for the relief of mitral stenosis. The possibility of the relief of mitral stenosis by surgical means was first suggested by Sir Lauder Brunton,[1] in 1902. Since that time many experimenters and surgeons have made attempts to work out practical procedures for cutting the heart valves. MacCallum,[2] Cushing and Branch,[3] Schepelmann [4] and others have succeeded in cutting or tearing the valves by means of hooks or small knives without the aid of the eye. Haecker,[5] Carrel and Tuffier [6] have developed speedy procedures for operating on the heart valves under guidance of the eye by shutting off the circulation through the heart. Carrel and Tuffier have successfully cauterized, sutured and cut the pulmonary valves of the normal hearts of dogs.

All these experimental procedures have seemed impracticable of application to the human heart, since they necessitate either the cutting of the valve without the guidance of vision, or the arrest of the circulation and a speedy operation. The method which we have worked out has none of these objectionable features.

Three things are worthy of special consideration in the development of this method for intracardiac surgery and its application to the relief of mitral stenosis. The first is the instrument for exploring the heart cavity; the second is the selection of the route of approach through the heart wall to reach the mitral valve, and the third is the actual cutting of the mitral valve.

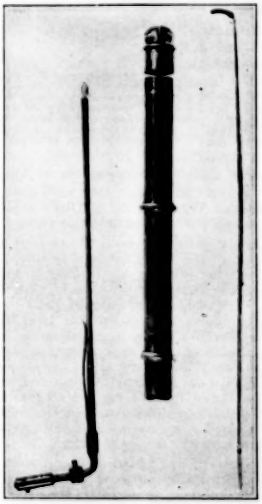

Fig. 1.—Cardioscope taken apart, so as to show knife attachment; the lens is convex.

INSTRUMENTS

The procedure involves the introduction of a cardioscope through the heart wall into the cavities of the heart. It is tied into the wall of the heart by a purse-string suture or a ligature thrown around the point of introduction. This controls hemorrhage. The cardioscope is then manipulated to bring into view any portion of the interior of the atrium or of the ventricle. On first thought it would seem impossible to see the interior of the heart in the presence of the opaque blood. This is not the case, as will be shown. The endocardium can be seen through the cardioscope as clearly as we see the mucosa of the bladder through the cystoscope, if the lens of the instrument is in contact with the structure to be seen.

The cardioscope is a metal tube, one end of which is closed by a planoconvex lens. The plane surface of the lens is within the tube, the convex surface is without (Fig. 1). The convex surface is of such curvature that it can be applied snugly to the walls of the heart cavity. A small electric light bulb, fitted on a carrier, is placed against the plane surface of the lens. This illuminates that portion of the endocardium which is in contact with the lens. This portion of the endocardium can be clearly seen through the tube. Direct vision of the interior of the heart is thus made possible in the presence of blood.

A knife to cut the valves is carried alongside the tube of the cardioscope. The flat steel handle is held

* From Washington University School of Medicine, Department of Surgery.

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2. MacCallum, W. G.: On the Teaching of Pathological Physiology, Bull. Johns Hopkins Hosp., 1906, No. 185.
3. Cushing, Harvey, and Branch, J. R. B.: Experimental and Clinical Notes on Chronic Valvular Lesions in the Dog and Their Possible Relation to a Future Surgery of the Cardiac Valves, J. M. Res. **17**: 471, 1907.
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5. Haecker, R.: Experimentelle Erzeugung von Herzklappenfehlern und anderen pathologischen Veränderung am Herzen, Arch. f. klin. Chir. **84**: 1080, 1907.
6. Carrel, Alexis, and Tuffier, T.: Etude anatomopathologique et experimentale sur la chirurgie des orifices du cœur, Presse méd., March, 1914, p. 173. Tuffier, T.: Etude experimentale sur la chirurgie des valvules du cœur, Bull. de l'Acad. de méd. **71**: 193-95, 1914; La chirurgie du cœur, 1921.

close to the tube by two collars. The blade of the knife is placed at right angles to the handle. The cutting edge faces the lens. The whole of the blade can be concealed in a groove cut across the center of the lens. Thus the knife is held ready for immediate use.

ROUTES OF APPROACH

In our earliest experiments, we considered it best to place a purse-string suture around the point of entry in the heart wall before making the incision for insertion of the cardioscope. This was done first near the apex of the left ventricle, and then in various regions of the walls of the left atrium and its auricular appendage. We found that brisk bleeding usually accompanied the placing of the purse-string suture in the thin walls of both the left atrium and the left auricular appendage. The hemorrhage was due to needle punctures into the cavities of the atrium and the auricular appendage. It was difficult to control. The hemorrhage did not take place from the wall of the ventricle. The ventricular route of entry to the mitral valves was, therefore, the first to be chosen.

An opening was made through the wall of the left ventricle near the apex. The opening was of just sufficient size to admit the cardioscope. The high systolic, intraventricular pressure was encountered. It was found necessary to place the purse-string suture about 1 cm. from the edges of the incision in order to control the hemorrhage around the cardioscope. The purse-string suture had to be tied with marked tension. All this trauma was accompanied by marked disturbances in the heart action. Furthermore, it was found that more than 50 per cent. of the hearts stopped in diastole during the operation. Other regions of the wall of the left ventricle were used as the site of entry with no better results.

Plaster-of-Paris casts were then made of the cavities of the heart to determine, from an anatomic point of view, the most suitable region of the heart wall to enter. It was evident at a glance that, on the basis of anatomy, the auricular appendages were the most suitable structures through which to insert the cardioscope (Fig. 2). Furthermore, the physiologic function of the left auricular appendage seems to be the least important of any part of the heart. For these two reasons the left auricular appendage was then chosen as the route of approach to the mitral valve.

Since we had experienced difficulty in placing the purse-string suture about the auricular appendage, a weak-jawed, rubber jacketed clamp was made to control hemorrhage until the cardioscope could be inserted and tied into place. The clamp was applied to the base of the appendage. A simple ligature was used to tie the cardioscope into the appendage instead of a purse-string suture. After tying, the clamp was removed from the base of the appendage. No bleeding followed (Fig. 3). The interior of the auricular appendage could then be seen through the cardioscope.

ACTUAL CUTTING OF THE MITRAL VALVES

The end of the cardioscope was pushed from the cavity of the left auricular appendage into the cavity of the left atrium. If the cardioscope is turned in the direction of the valves, they can be clearly seen and definitely identified. They are of a distinct white color, with a slight translucence. The cardioscope is held so that the valve leaflets are in contact with the lens during systole. The knife blade is pushed into the cavity of the ventricle. Traction on the handle of the knife then brings the valve leaflet against the lens, and holds it there for reinspection. Further traction cuts the valve.

The end of the cardioscope is then withdrawn from the cavity of the atrium into the cavity of the appendage. While it is being held there, that portion of the auricular appendage which contains the end of the cardioscope is tied off and amputated.

No sutures are taken in the auricular appendage. By simple ligation the placing of suture material within the cavity of the appendage is avoided. Thus hemorrhage at the time of the operation is guarded against, and at the same time the formation of postoperative intracardiac thrombosis is prevented. Ligation of the appendage places the endocardium to the endocardium.

A consideration of moment in these operations on the mitral valve has been that of postoperative pericardial adhesions. In our earlier experiments, the pericardium was opened widely enough to remove the heart

Fig. 2.—Plaster-of-Paris cast of the cavities of the left atrium and left auricular appendage, posteriolateral view: 1, tip of appendage, site of incision for inserting the cardioscope; 2, base of auricular appendage; 3, cavity of left atrium; 4, imprint of valve leaflet; 5, mitral ring; 6, left inferior pulmonary vein.

from the sac. It was found that adhesions between the heart and pericardium took place along the line of suture in the pericardium. In our later experiments we have made a 2 cm. incision in the pericardium across the base of the left auricular appendage (Fig. 3). If pressure is applied to the pericardium at the anterior edge of the incision, the appendage flips out of the pericardium through the small incision. Postoperative adhesions form then mainly between the stump of the appendage and this line of suture in the pericardium. The pericardium has been closed without drainage in all our experiments.

Our series of intracardial explorations and operations will be presented in detail in a future communication. In general, the approach through the left auricular appendage to the mitral valve is accompanied by a surprisingly small disturbance in the heart action. Twenty-two experiments have been done through this

approach. Only one fatality has occurred during these manipulations of the heart, and that was due to an easily avoidable fault of technic. A loud systolic murmur over the apex has followed each operation for cutting the mitral valve. In those experiments in which death was spontaneous, blood has not been present in the pericardial sac at necropsy in any case. Although the mortality has been high, death has occurred late in most instances, and empyema seemed to have been the cause of death in virtually all. Death has therefore usually been due to accidental infection and not to any fundamental error in the method. One dog is still living eight and one-half months after the mitral valve was cut by this procedure, and two other dogs are still alive more than two months after cutting the mitral valve. They all still have systolic murmurs.

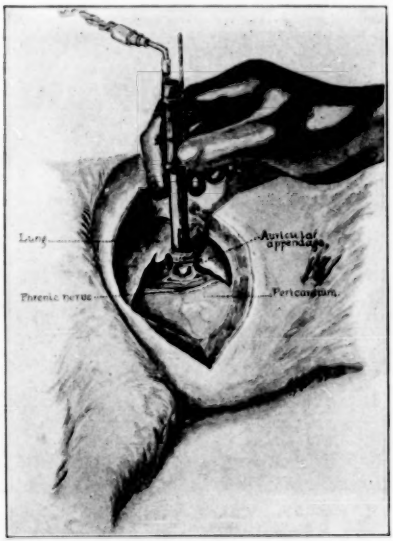

Fig. 3.—Cardioscope inserted into left auricular appendage; size and location of the incision in the pericardium.

ADVANTAGES

The new surgical procedure for intracardiac operations which we have worked out has these desirable features:

1. Hemorrhage does not occur.
2. The circulation is not interrupted.
3. Haste is not imperative.
4. The operation is carried out under the guidance of the eye.
5. The normal heart of the dog tolerates the procedure.

During the past year we have been able to cut any desired leaflet of the tricuspid, the pulmonary or the aortic valves. This has been done with deliberation and under guidance of the eye.

By the use of the cardioscope, the valves, the chordae tendineae, the papillary muscles, the muscle bundles and the openings of the large and small arteries and veins into the cavities of the heart can be clearly seen and definitely identified. The finer details of the walls of the heart cavities can be seen. With the proper attachments for the cardioscope, it is possible, therefore, to do accurate experiments and operations on these structures in the functioning heart.

THE LOCALIZATION AND EXTRACTION OF INTRA-OCULAR FOREIGN BODIES *

JAMES M. PATTON, M.D.
OMAHA

That the last word on localization and removal of intra-ocular foreign bodies has not been written is very evident from the diversity of opinion expressed by men who, from a wealth of experience and maturity of judgment, may well be classed as authorities. For example, there is a marked diversity of opinion as to the value and method of localization, a number of men of national influence insisting on a thoroughly accurate localization. Others of equal prominence are satisfied with a lateral and anteroposterior plate, a plate taken with the globe in motion or with two positions of the globe on the same plate. One of our best known operators (McReynolds [1]) does not hesitate to insert the tip of the magnet into the vitreous, to the foreign body if necessary, if it cannot be secured otherwise, while another (Allport [2]) of wide experience cautions us against such a procedure, evidently thinking the danger from the operative trauma greater than the presence of the foreign body. So long as these honest differences exist, it does not seem out of place to present this subject in the hope that by repeated discussion we may establish more definite procedures in the management of these sometimes difficult cases.

As the welfare of the patient is of first importance, we should approach this or any other subject bearing on the preservation of such an important structure as the eye with an open mind, and consider the suggestions of other operators, even though they may be markedly at variance with some of our pet theories.

Derby [3] states that "in every injury of the eye the possibility of an intra-ocular foreign body should be considered." If we could all take this to heart literally and practice its teaching, it would save us much embarrassment and save our patients from the danger of carrying a foreign body for weeks and even months, to be discovered later by some more painstaking colleague, or until siderosis or degeneration makes the presence of the foreign body all too evident. We are sometimes too willing to accept the statement of the patient that he is absolutely sure there is no foreign body in the eye. In many cases, the wound of entry is almost imperceptible, and the pain at the time of injury so slight that it passes unnoticed. On the other hand, I recall one case in the days before the roentgen ray in which an intra-ocular foreign body escaped us, owing to the fact that the wound was very extensive and the patient assured us that he had been hit by a bolt 4 inches in length and three-fourths inch in diameter, when in reality it was a flake of metal about

* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. McReynolds, J. O.: Foreign Bodies Within the Eyeball, J. A. M. A. 73: 818 (Sept. 13) 1919.
2. Allport, Frank: Am. J. Ophth. 1: 412 (June) 1918.
3. Derby, G. S.: Am. J. Ophth. 4: 334 (May) 1921.

half an inch in extent from the sledge with which he had been pounding the bolt. The patient was so sure he had been hit by the bolt that we did not try the magnet for a couple of days. Any one who is doing any amount of eye work can recall cases in which the patients have been referred for other conditions only to find that the trouble was due to an intra-ocular foreign body. I wish to mention the following, not only as an illustration of this unfortunate fact, but also as a side light on the theory of Tuckett [4] and Verhoeff [5] that the presence of iron pigment acting on the fibers of the third nerve in the siderotic iris is responsible for the dilatation which not infrequently accompanies it.

E. G. H. was referred to us on account of an intractable dilatation of the right pupil, with temporary spells of blurring of vision. He was an employee of one of the railway companies and had been treated by the local oculist for some time. He gave no history of injury beyond having gotten some dust in the eye; but in view of the subsequent findings, he thought he could remember having gotten a foreign body in his eye several months previously, but it was removed by the local oculist and he had forgotten the circumstance. The vision of his right eye was 20/20—1, left eye 20/15—1, the vision of the left eye being the better of the two. There was no restriction of motility or convergence. I was unable to get a satisfactory view of the fundus on account of light irritation. The pupil was dilated almost to the maximum, and the iris was decidedly discolored. As he was so positive there was no possibility of a foreign body in the eye, I did not have a roentgenogram made, which I admit was very reprehensible on my part; but to ease my conscience, I cautiously tried the magnet, in this case a Haab, and immediately a foreign body presented itself back of the iris, was drawn around into the anterior chamber, and was delivered through a corneal incision without much loss of aqueous. The surprising thing in this case was that as soon as the foreign body was drawn into the anterior chamber, the pupil contracted down to 3 mm. and remained so without the use of a myotic. I explained this on the basis that the foreign body must have been exerting pressure on one of the larger nerve filaments at the root of the iris, and probably also accounted for the photophobia. The patient's recovery was uneventful, but he returned some six months later with a traumatic cataract which was removed in the usual way. He went back to his local oculist before a final test was made, and I have not heard what the visual outcome was. Owing to the size of the foreign body, it is quite possible that if the proper localization had been made, the foreign body could have been removed by the posterior route and the traumatic cataract avoided.

In the nonmagnetic foreign bodies, it is sometimes necessary to show the patient the roentgenogram before he can be convinced that his eye contains a foreign body, even though the laceration may be extensive. For example:

C. W., aged 26, was attending a neighborhood "Wiener roast," when one of the young men playfully threw a handful of twenty-two cartridges into the fire, and he was struck in the eye by one of the exploding shells. When seen twenty-four hours later, the globe was badly lacerated and removal was advised, but the patient would not consent to this until he was shown the roentgenogram, which revealed a piece of copper fully a half inch long by three-sixteenths inch broad in the vitreous chamber. The argument was sufficient, evisceration showing an already well advanced purulent degeneration of the vitreous.

In our experience, the eye seems to tolerate copper or brass more kindly than the other nonmagnetic substances, and, in addition to this, there is a tendency for this type of metal to work its way outward through the coats of the eye, this having occurred at least twice in my experience.

4. Tuckett, I. L.: Brit. J. Ophth. 2:79 (Feb.) 1918.
5. Verhoeff, F. H.: Brit. J. Ophth. 2:571 (Nov.) 1918.

Although the roentgen ray has certain limitations and shortcomings, I think we must admit that it is our most valuable aid in determining the presence and location of the various foreign bodies that gain access to the interior of the globe. Even when the object is glass, which is, of course, the most difficult to locate, we can frequently get a shadow, if the work is done with extreme care.

Many schemes for localization have been devised, ranging from the very simple methods suggested above to the complicated but accurate systems proposed by Eaton.[6] It would scarcely seem, with the comparative simplicity of the Sweet localization method and its modifications, that we should be satisfied with the

Fig. 1.—Roentgenograms taken with Sweet localizer, showing Gifford markers: *A*, markers; *B*, foreign body.

inaccurate methods that were used before this system came into general use. It is true that plates taken in two different planes give a general idea as to the location of the foreign body and, in lieu of something better, two positions of the eyeball on the same plate or a plate taken with the eyeball in motion give us a rough idea as to the location; but it is very evident that a foreign body, a millimeter or so in the vitreous, embedded in the sclera or 2 mm. outside the sclera, will be moved through a considerable arc when the eyeball is rotated, so that we are naturally still at a loss to determine whether the foreign body is just inside, or embedded in, or just outside the sclera. Dr. Jackson

6. Eaton: Brit. J. Ophth. 1:721-749 (Dec.) 1917.

wisely calls attention to the necessity for considering the probable length of the eyeball and divergence of the rays in using the commercial localizers, and there is always the possibility of the patient's moving the globe without his or the operator's knowledge. To forestall this error and to provide a fixed point of measurement even when the eye is moved, it has been our custom to continue the use of a procedure devised by my colleague, Dr. Harold Gifford, in the old pre-localization days, though not published by him until 1912.[7] This is simply to insert a small bit of metallic substance, preferably a piece of sterilized wire or lead, just beneath the conjunctiva as close to the limbus as possible. Usually, this is placed at both the upper and lower limbus, and can be done without discomfort to the patient by anesthetizing the conjunctiva with a little cocain. These markers (Fig. 1) may be removed as soon as the plates are taken, usually before the cocain has had time to wear off. We attempted to attach little metallic clips or split shot to the surface of the conjunctiva, but we found that they were not nearly so satisfactory as the subconjuctival substance just mentioned.

Similar plans were suggested by other men, such as fastening a ring of wire to the surface of the lid, and crossed wires attached by adhesive tape; but these were relatively a considerable distance from the cornea, and in our hands were not so satisfactory as the bits of wire introduced under the conjunctiva.

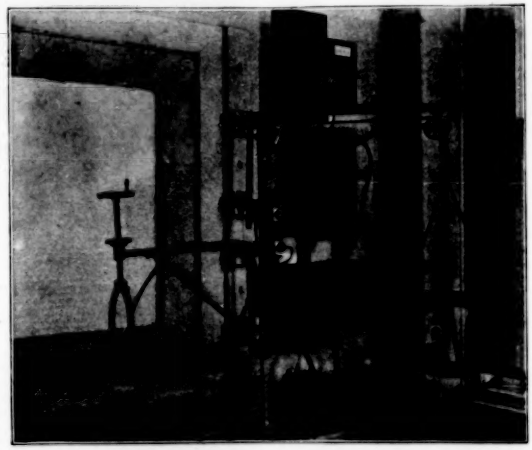

Fig. 2.—Arrangement of Haab and ring magnets: *A*, Haab magnet; *B*, ring magnet; *C*, rheostat; *D*, distributing switch; *E*, automatic control switch.

There is always a discussion, of course, as to whether the operator is justified in using the magnet as an instrument of localization, or whether the magnet should ever be used without the guidance of previous roentgenoscopy. I think there are instances in which this is justifiable; but the privilege must not be abused. If either from ophthalmoscopic observation, the history of the injury, the condition of the lens or the nature of the wound, we are positive that the foreign body is small and probably well forward, and if for financial reasons the patient does not feel like going to the expense of a roentgenographic localization, I feel that we are justified in trying the magnet first, though it is only fair that in every case the possible benefit of the roentgen ray should be explained to the patient and he should be given the privilege of having it if he so desires. On the other hand, if the foreign body is apparently far back, if we suspect that it is of considerable size, or if the lens is apparently uninjured, then both the patient and the operator are entitled to the information that can be gained from a most careful localization. Derby [8] properly insists that it is unwise to lose valuable time waiting for a roentgen-ray localization. This is perfectly true; but, with the modern methods of developing, the operation, except in very unusual circumstances, need not be delayed more than an hour at the most, as the localization may be taken care of while the surgeon is preparing for the operation. Of course, cases coming in at night or when the accustomed roentgenologist is unavailable are the exceptions, and must be met as we would any other emergency situation.

We frequently hear the complaint that roentgen-ray operators are not familiar with the modern methods of localization. This is no doubt true; but, as I mentioned a couple of years ago, this is largely the fault of the oculist rather than the roentgenologist. I have found these gentlemen very willing to cooperate, and a little team work will often solve the problem. A few years ago,[8] in collaboration with our roentgenologist, Dr. W. H. Mick, I placed an opaque foreign body in various positions in a number of animals' eyes. These were frozen by the usual salt and ice method, placed in the normal position in a skull, and localization plates taken. I then sectioned the frozen eyes and accurately determined the position of the foreign bodies while the roentgenologist localized them on his plates. Not only did this help him to acquire proper technic, but we were much gratified by the accuracy with which the localizations were made. Since then, we have had no trouble in securing satisfactory localizations, and I would recommend this method of training the roentgenologist to any who are having trouble along this line.

Before beginning an operation for the extraction of an intra-ocular foreign body, the question of prognosis should always be discussed with the patient, as it is much easier at that time to explain the dangers of the operation and possibility of failure than afterward. As a rule, the patient will be satisfied to have the operation, and then, should the eye turn out badly, will feel that everything possible was done to save it. In the recent cases, we may well expect beginning infections or the possibility of retinal detachment, hemorrhages, lens injuries, etc.; but in cases in which the foreign body has been in the eye for a considerable period without causing any particular disturbance, we sometimes

7. Gifford, Harold: Ophth. Rec., January, 1912.

8. Patton: Western Med. Review, August, 1917, p. 404.

fail to call attention to the relatively uncertain prognosis, and the manipulation may stir up a latent infection or give impetus to an already present degenerative process, as the following illustrates:

J. W., aged 34, consulted us, Jan. 30, 1922, with a history of having injured the right eye three months previously while pounding a chisel with a hammer. A roentgenogram had been taken at the time, which was negative. Vision was fairly good until four days before consulting us. There was no pain, and practically no congestion. Vision of the right eye was 3/200; of the left eye, 20/15. The ophthalmoscope revealed very numerous fine and coarse vitreous opacities in the right eye, the lens being clear. No external evidence of a penetrating wound or an intra-ocular foreign body could be obtained. As the patient was very sure that the previous roentgenogram was negative, we did not have this repeated; but, on applying the magnet (Lancaster portable), a fragment of steel 3 mm. long and 1.5 mm. wide was drawn into the anterior chamber and delivered through a corneal incision. A magnetized knife was used in this instance, the foreign body adhering to the lips of the wound on its removal and delivered with the Lancaster hand magnet without even touching the tip to the corneal surface and without the loss of more than a drop or two of aqueous. I mention these details to show that the subsequent inflammation was in all probability not due to the operative procedures. On seeing the patient the next day, I was surprised to find the eye deeply congested, aqueous hazy, and a well marked hypopyon, the patient complaining of great discomfort. This inflammation persisted for ten days in spite of most vigorous treatment. An enucleation was advised, but the patient asked for a little more time, when the eye gradually began to improve and, when last seen, was practically free from inflammation, but almost sightless. The danger of keeping the eye was explained to the patient, but he thought he would rather take a chance and, so far, has had no further trouble.

Fig. 3.—Position of ring magnet and patient.

As to the choice of magnets, there are a number of excellent types on the market, varying from the very powerful instruments of Haab and of Lancaster to the more flexible but less powerful hand magnets of Hirschberg, Sweet, Lancaster and others. Dr. Lancaster presented a scholarly, scientific discussion of the relative merits of various types of magnets at the recent meeting of the American Academy of Ophthalmology and Oto-Laryngology in Philadelphia in 1921, in which he called special attention to the importance of selecting an instrument in which the end of the tip was as close to the coil as was consistent with good work. He also mentioned a very small hand magnet which he has recently had constructed and which he assured us had ample power. I have not had the privilege of seeing this magnet; but, from the description, I should think it would be an ideal instrument.

There has been considerable discussion as to the relative merits of the so-called ring or inner pole magnet. A number of our British confrères are especially enthusiastic over it, notably T. Harrison Butler,[9] who has had a wide experience with this type of instrument and who considers it to have a very decided advantage over other types, especially as a hand magnet is not necessary and it can be used while the patient is in a prone position; and Tuckett,[10] who reports a case in which the ring magnet was successful when the Haab had failed. At present, we are using a Lancaster arm and hand magnet at the office and in the ophthalmologic clinic at the University of Nebraska College of Medicine, with a Haab and ring magnet in our operating rooms at the Nebraska Methodist Hospital. The heavier magnets are mounted on cranes (Fig. 2) for, while the Lancaster arm magnet is entirely practical when slung from the shoulder of an assistant, it is more convenient when permanently suspended. We have found the Lancaster magnets to be very practical and fully equal, if not superior in power, to our Haab. The hand magnets have plenty of power, but the models we have are inclined to heat rather quickly. While the ring magnet we use is not as powerful as the Haab or the Lancaster types, it is so convenient to use that we invariably employ it when the foreign body is in the anterior chamber or has been drawn there either by the ring "electrodes" or by one of the larger magnets. The patient is in a comfortable position, and the operator can go about his work as quietly and accurately as he would in any other delicate procedure on the anterior segment of the globe.

I wish to emphasize one procedure which I have mentioned previously[11] and which can be carried out best when using the ring magnet: that is, making the corneal incision while the current is on in the magnet. The knife at once becomes magnetized, causing the foreign body to fly to the point as soon as it enters the anterior chamber, and on completion of the incision and withdrawal of the knife, the foreign body is almost sure to adhere to the lips of the wound and can be easily removed without even touching the cornea with the tip of the electrode, thus avoiding even the suggestion of infecting the wound. The same result can be accomplished by magnetizing a knife through a minute or more of contact with the tip of the giant magnet; but, in my experience, the action is not so strong as when the inner pole magnet is used. Before making the incision, one should be sure that the foreign body is well away from the iris angle, as the loss of even a small amount of aqueous may result in pinching the foreign body so tightly that the operation must be delayed till the aqueous reforms.

As to the choice of routes, while some few men seem either "always" to use the corneal or "always" the scleral routes, I feel that every case must be dealt with according to its individual requirements. When the

9. Butler, T. H.: Brit. J. Ophth. 1: 46 (Jan.) 1917.

10. Tuckett, I. L.: Brit. J. Ophth. 2: 329 (June) 1918.
11. Patton, J. M.: Am. J. Ophth. 4: 605 (Aug.) 1921.

foreign body is small and relatively smooth and can be brought forward without unnecessary danger to the lens, it is our custom to deliver it through the anterior chamber. On the other hand, if the object is large and jagged or firmly fixed in the tissues of the posterior segment, I am convinced it is much less dangerous to approach it through the sclera after careful localization. In doing so, the incision should be of sufficient size, and if it is necessary to insert the magnetized tip into the vitreous, it should be done with extreme gentleness and with strictest antiseptic precautions. A number of observers have called attention to the value in adherent cases of throwing the current off and on, in a sense "jerking" the foreign body. We have found this of real value; it should be tried repeatedly and, when necessary, on successive days. In cases in which the magnetic foreign body is firmly embedded in the sclera and absolutely resists the action of the magnet, if it is visible through the pupil, we are certainly justified in loosening this with a knife needle under direct ophthalmoscopic observation.

The after-care of these cases is exceedingly important. It is our custom, except in cases limited to the anterior segment, and even then if there is congestion, to proceed as though there was a beginning intra-ocular infection. The patient is kept in bed with both eyes bandaged, and he is given salicylate, inunctions, hot packs, etc. If the eye fails to quiet down rather promptly, the danger of sympathetic ophthalmia is explained to the patient. Then the responsibility of keeping the globe rests with him. When there is a question as to whether the steel is in the sclera or just outside it, the eye should be kept under observation, but should not be removed without very definite evidence of irritation. If the steel is outside the sclera, the chance of its causing trouble is practically nil. If it is embedded in the ocular coats, we are justified in doing our utmost to remove it rather than tamely to enucleate the eye on the possibility that at some future time it might cause trouble.

Finally, in caring for this class of cases, one should not be misled by the patient's story. In any case of penetrating wound, we must prove the absence of a retained foreign body.

Give the patient the benefit of a roentgen-ray localization if he wants it in any case, and insist on it if it will materially improve the prognosis.

If the roentgenologist cannot localize accurately, cooperate with him experimentally until he can.

Discuss the prognosis with the patient or a responsible relative before beginning the operation.

Choose the route in accordance with the needs of the individual case.

Do not give up too easily. Success is frequently the result of repeated efforts.

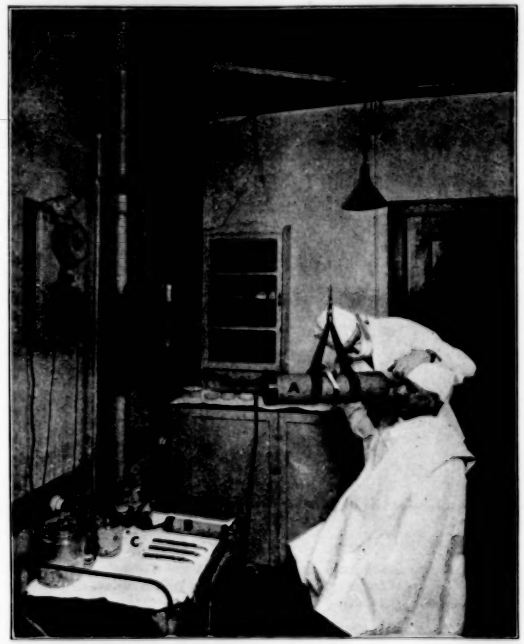

Fig. 4.—Lancaster portable magnet suspended from crane, showing flexibility and ease of manipulation: *A*, Lancaster portable magnet; *B*, Lancaster hand magnet; *C*, electrodes for ring magnet.

ABSTRACT OF DISCUSSION

DR. GEORGE F. KEIPER, Lafayette, Ind.: Localization is dependent on the mathematical principle that the position of a plane is determined by three points. To determine the location of the point C, two fixed points, A and B, are necessary. Knowing already the distance between A and B, by triangulation we are able to determine the location of the point C and its distance from the base line connecting the points A and B. That is what the range finder does at sea to determine the position of the target. Sometimes it is called triangulation. The astronomer uses this principle to measure the distances of the heavenly bodies from the earth. The same principle is applicable to the localization of foreign bodies anywhere in the eyeball or in the orbit. So any attempt to determine the location of a foreign body in the eyeball by doubly exposing the plate as the eyeball is rotated to determine whether it is in the eyeball or outside the eyeball is unwise, because the third point necessary to exact localization is lacking. The foreign body may be within the globe, and yet only one point may show on the double exposed plate as the eyeball is rotated. The only way to get the location of the foreign body is to have two fixed points entirely outside the eyeball and eyelids. Hence, the modification of the Sweet apparatus which brings the two fixed points as close to the cornea as possible. Then, by means of the roentgen ray, we are able to determine not only whether the foreign body is within the eyeball but also its plane, i. e., its exact location. The charts which come with the apparatus help very materially in the solution of this problem. All patients with intra-ocular foreign bodies should be warned that we are bound to lose 50 per cent. of such eyes anyway because of the trauma produced, to say nothing of the possibility of infection from a dirty foreign

body. Again, foreign bodies are sometimes carried for years without doing any particular damage to the eyeball or its vision.

DR. C. D. WESCOTT, Chicago: Dr. Derby has made a very valuable suggestion, and that is, that if the ophthalmoscope and roentgen ray do not positively determine the location of the foreign body in the eye, we should always use the magnet test. I recall one case in which it was evident that a rather large foreign body had entered the eye, but the eye was so mutilated that it was impossible to use the ophthalmoscope. The roentgen ray, after six examinations, seems to show that the foreign body was definitely behind the eye. The reason so many plates were made was that we wanted to be sure that the foreign body was outside the eye and that we had a double perforation. Because the roentgen ray showed it behind the eye, the magnet was not used. The eye went on to complete destruction, and when it was removed and incised the foreign body was found inside the eye at the posterior pole.

DR. J. M. BANISTER, Omaha: I agree with Dr. Patton that we ought to try to localize these foreign bodies. For one reason, the foreign body may have gone entirely through the eyeball and be located outside the globe. How foolish it would be in such case to be doing much intra-ocular work with the magnet. Suppose the foreign body has entered the eyeball, and is lodged in the vitreous humor; does that condemn that eye? Not by a great deal, judging from what we learned in the war. Why not apply the immense volume of military experience to civilian practice in determining what to do? It is reported in the American Encyclopedia of Ophthalmology that thousands of men continued on active duty at the front with small foreign bodies in the eyeball, with normal, or almost normal, vision, without any symptoms of irritation in the other eye at all. That being the case, why should we condemn an eyeball because we find a little foreign body in it? We should practice conservatism there, and if we cannot eradicate it by simple use of the magnet, then let us wait and see what is going to happen. Very likely that body, if in the vitreous, may remain without causing any trouble, and if an iridocyclitis should develop with danger of sympathetic involvement of the other eye, then enucleation would be in order.

DR. GEORGE S. DERBY, Boston: The first point in Dr. Patton's paper which I wish to stress is the possibility of not recognizing the presence of a foreign body in the eye. It is most important that we should never take the history which the patient gives. We should always use every means of examination in our power to exclude the presence of a foreign body. In cases in which the wound is in the conjunctiva, it may be so covered by hemorrhage that the perforation is not made out and the oculist is satisfied that none exists. The magnet test is the final judgment in the question of foreign bodies. It is always easy to put the patient before the big magnet and test for a pain reaction, if there is the least possibility of a punctured wound. I have seen several cases and I have known of others in which, although careful examination was made, the perforating wound came to light through the roentgen ray and the use of a magnet. In several cases, foreign bodies were not discovered until the chance for successful extraction was not nearly so good as it would have been at first. In regard to the question of nonmagnetic substances in the eye, in my experience small pieces of stone are better tolerated than any of the metals. Dr. Gifford's plan of inserting a piece of wire under the conjunctiva above and below is excellent. It would be a great help in discovering the exact location, and especially in telling whether the eye has moved. The presence of foreign bodies in the eye should be regarded as a real emergency, and they should be extracted with the least possible delay. When the use of the roentgen ray means a delay of several hours, and when it is evident from the size of the wound and the ophthalmoscopic appearance of the foreign body that it is comparatively minute in size, we should extract anteriorly without the aid of the roentgen ray; but when a posterior extraction is to be done, the roentgen ray is indispensable, unless an exact idea of the position can be obtained with the ophthalmoscope. The sooner a foreign body is removed, the better it is for the patient. There is less danger of sepsis, and the foreign body is less likely to become firmly fixed in the eye, a very important point; for the dragging of a foreign body from the exudate which had formed around it is always accompanied by much greater reaction, and a foreign body is always extracted with much more difficulty than is the case when the wound is fresh. There is no question that when the magnet test is not tried and reliance is put solely on the ophthalmoscopic examination and the roentgen ray, a certain number of foreign bodies escape detection. Frenkel reports eight cases of wounds of the eye in which the roentgen ray was negative, and foreign bodies were found at enucleation; in five of these cases there was more than one foreign body in the eye. Others have also reported similar experiences. Therefore, we should never forget that the magnet test is the final test for the presence of a magnetic foreign body. As to the choice of magnets, the essential thing is to get a magnet that will do the work. The arm magnet of Lancaster is an excellent instrument, but it is not nearly powerful enough to get the best results. The Haab magnet is badly designed and one does not get nearly the amount of power needed. This is also the case with the ring magnet of Mellinge. Some of these foreign bodies are very small; some are wedged in the sclera or covered by exudate. Therefore, it requires a magnet with an extremely strong pull to dislodge them, and this is one of the reasons why these patients should be sent for extraction to the place where the strongest magnet and the greatest surgical skill can be obtained. Comparatively small foreign bodies should be extracted anteriorly when possible. Large foreign bodies, as a rule, should be extracted through a posterior incision, but in these cases the eye is usually lost. I agree with Dr. Patton that it may be necessary to use the large magnet on several occasions in the case of foreign bodies which are firmly embedded in an exudate or in the ocular coats. In this case we often try the method of throwing the magnet on and off rapidly.

DR. A. E. EWING, St. Louis: Before the days of the Sweet localization, Dr. Post and I were accustomed to localize foreign bodies by what I still consider one of the best methods, because the patient cannot change the localizers. Instead of putting the wire or the film against the cornea, which a tender eye sometimes will not bear, we had the lids closed first and then put a piece of fuse wire vertically on the upper lid at the center of the lid, so that it extended from the upper border of the tarsus to the cilia, and another piece on the lower lid in the same meridian, extending from the cilia to the lower margin of the tarsus. These bits of wire were held in place with pieces of zinc plaster above and below. A lateral exposure was then made. The bits of wire were then moved to the nasal and temporal angles for an anteroposterior exposure. From the data thus obtained, the eyeball could be plotted and the foreign body located.

DR. JOHN A. DONOVAN, Butte, Mont.: One should take time to study the case, and if one does not know what to do, should send the patient to some one who does. As soon as these patients come into our office, the first thing we think of is to operate. The best thing about Dr. Patton's paper is that he did not tell us anything dogmatic, perhaps for the reason that every case requires a different method. But, if in doubt, one should take time to decide what one is going to do, or whether one is liable to do more harm than good. Unless it is an urgent case, one can better afford to wait a few days to study the case.

DR. J. G. DORSEY, Wichita, Kan.: One form of foreign body was not mentioned in the paper that sometimes causes very serious thought. Some time ago, a child fell out of a plum tree and got a splinter of the wood into the eye. It was very difficult to remove. The foreign body broke off close inside the cornea. There was no possibility of using the magnet because this was a piece of wood. If one used the keratome to cut through one might push the wood

through into the lens and further injure the eye. The procedure I used was to put the keratome in one side so as not to push the piece of wood; then, putting the forceps in, I seized it and tried to draw it through the wound. When this was done, however, it caused traction so that it presented itself at the opening and I withdrew it through its own opening.

DR. OLIVER TYDINGS, Chicago: After we had learned to use the roentgen ray for locating foreign bodies in the eye, we found out that the giant magnet was not the court of last resort. For many years we had the only giant magnet west of the Alleghenies. Where the foreign body is large enough to destroy the eye, of course, the treatment is not satisfactory. A man came to me in March who the August before had got something into his eye and thought nothing of it. He came with a neuroretinitis. I put him under treatment after trying the giant magnet, which failed to locate the body. After awhile, the trouble subsided. About six months later he turned up with another attack of the same kind. Three of us spent two hours trying to locate the foreign body with a giant magnet. It did not occur to us to use the roentgen ray. This was many years ago. He got well of that attack, but after several months he had another. Then we used the roentgen ray and located the body just under the retina below. Another interesting case was one in which the foreign body had passed entirely through the globe. It was localized about four or five days after the injury. This injury occurred while he was traveling on a train. He went to his local physician and was examined and treated, but did not improve. He came to me, and the eye was perfectly soft. The man who had treated him had used atropin and I sent him for localization. The foreign body was found behind the globe. I have every reason to believe that it was a piece of lead which the magnet would not have had any effect on. I immediately put the man to bed and gave him all the attention I could, and finally the lesion healed and vision became normal; he had better than 20/20 vision in that eye. We kept him under observation for several months and then he went to California and spent a year. When he came back, he had a plastic iritis which cut down his vision very materially. I have not seen him since. That was ten or fifteen years ago.

DR. JAMES M. PATTON, Omaha, Neb.: I wish to congratulate Dr. Dorsey on the successful outcome of his case of wood fiber in the anterior chamber. These are often very difficult cases and cause more trouble than metallic foreign bodies. I do not want to leave the impression that, because occasionally the roentgen ray may fail, we should take this as an excuse for not using it. Failure may be occasionally noticed in any diagnostic measure, but this is no excuse for not using it. I am sure if we will cooperate with our roentgenologists in improving their technic, the percentage of failures will be greatly diminished. Evidently Dr. Keiper did not quite get the idea about the use of markers. We do not depend on them alone, but we do feel that they give additional help when used in connection with regular localization technic. It gives us a fixed measuring point, no matter how the patient may inadvertently change the position of the globe. I have never seen any harm result from putting a piece of sterile opaque substance beneath the conjunctiva for localization. Personally, I cannot overemphasize the importance of removing foreign bodies as soon as possible. If we were sure there would be no progress in the infection, we might wait, as one of the gentlemen suggested; but unfortunately this is not the case. One speaker gave the impression that we might wait indefinitely if the foreign body did not seem to be causing any reaction. This I feel sure is a mistake. In looking over the reports of many cases in which intra-ocular foreign bodies have been carried for some time, I find that they almost invariably result in either partial or complete intra-ocular degeneration, and I feel that we are justified in employing extreme measures on the basis that if the object is successfully removed we may save the patient useful sight, while if it is allowed to remain the vision is almost sure to be entirely lost.

ANALYSIS OF A DIPHTHERIA EPIDEMIC*

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Topeka is a city with an estimated population, for the year 1921, of 50,850 persons. In only one year previous, 1915, had there been more than 100 cases of diphtheria reported for a twelve month period. During the year 1921, 786 cases were reported; 742 of these were reported from August 5 to and including Dec. 31, 1921; forty-six additional cases were reported from Jan. 1, 1922, to and including Jan. 31, 1922. The study of cases and incidents reported in this paper is from Aug. 5, 1921, to Jan. 31, 1922, during which time there were reported 788 cases, fourteen of which proved fatal.

The disease, on the whole, was very atypical, many of the patients presenting typical symptoms of a follicular tonsillitis, but on culture showing diphtheria bacilli in great numbers. The majority of the cases were mild, yet in numbers of the mild cases as well as the severe ones there developed complications common to the disease. It is impossible to say what percentage of cases were diagnosed or confirmed by culture; a conservative estimate of 90 per cent. of all cases reported is made.

The numbers of cases by race were: white, 718; colored, sixty, and Mexican, ten. On the estimated population for the year, the rates of attack by race for each thousand of population were: white, 15.8; colored, 13.3, and Mexican, ten.

Cases by months were thus reported: October, 291; November, 168; September, 162; December, 71; August, 50, and January, 46.

In cases reported by five day periods, that ending October 13 showed fifty-nine cases; November 17, fifty cases; September 23, forty-nine cases, and October 28, forty-five cases. For five other five-day periods, the number ranged between twenty and forty. In all other five-day periods, there were less than twenty cases reported. The highest number of active cases at any time of the epidemic, on the records of the health department, was 129 on October 18.

The highest number of cases reported for single days was: September 19, seventeen cases; October 11, nineteen cases; October 18, seventeen cases, and November 18, twenty cases. It is an interesting fact that three of the high periods occurred approximately four weeks apart. The first peak (of September 19) may be accounted for by the fact that the city schools opened on September 6, that the day was Monday and some of the cases may have been carried over from Sunday, that the majority of the days had either been cloudy or partly cloudy, and that during the thirteen day period ending on the above mentioned date there had been a total precipitation of 3.78 inches. There is no factor of any importance that would account for the other high peaks.

Of the 184 days from August 5 to January 31, 59 per cent. were reported clear; the remainder were reported as cloudy or partly cloudy. In August and September, 14.86 inches of rain was recorded, which

* Read before the annual meeting of the Health Officers Section of the Kansas Public Health Association, Kansas City, Kan., April 11, 1922.

was 7.85 inches above normal, while the other four months of the six month period under study recorded only 1.36 inches of rain, which was far below normal. Zingher of New York has emphasized the point that the normal mucous membrane will prevent the action of diphtheria bacilli that have lodged in the nasopharyngeal cavity of persons who show a positive Schick reaction. If this resistance, however, is destroyed by a catarrhal process brought on by bacterial action aided by inclement weather, or by an operation, then the Klebs-Loeffler bacillus will promptly begin its local action and produce clinical diphtheria.

The 788 cases reported represented 656 families, totaling 3,114 persons, of which number 1,505 were adults and 1,609 were children; 25.6 per cent. of persons who may, therefore, have been directly exposed in family association, came down with the disease. Cases resulting in families are shown in Table 1.

TABLE 1.—CASES IN FAMILIES

Number of Persons in Family	Number of Cases						Total Number Exposed
	1	2	3	4	5	6	
Two	50	..	..	..	..	..	100
Three	81	3	1	..	..	..	255
Four	159	13	2	..	..	..	596
Five	110	18	6	4	..	..	690
Six	62	12	6	..	..	..	480
Seven	39	3	3	..	1	1	329
Eight	16	3	..	3	1	..	184
Nine	9	..	2	..	..	..	99
Ten	5	1	2	..	..	..	80
All others	39	1	..	..	..	..	331
	570	54	22	7	2	1	3,114
Cases	570	108	66	28	10	6	

By age groups, the epidemic presented an interesting study; 24.2 per cent. of all cases reported were in persons aged 18 years or over, and of that number (24.2 per cent.) 65.3 per cent. were women, not a surprising percentage since many had the care of the children who were ill with the disease and thus came into more intimate contact. By five year periods under 20 years of age, and all over 20, based on the estimated population for the year, the attack rate for each thousand of population is given in Table 2.

TABLE 2.—ATTACK RATE

Age	Per Cent.	Estimated Population	Cases	Rate per Thousand	Number of Deaths	Case Fatality per Cent.
From 0 to 4	11.3	5,812	106	18.2	8	7.5
From 5 to 9	10.5	5,340	301	56.4	4	1.3
From 10 to 14	10.0	5,080	154	30.5	0	...
From 15 to 19	10.1	5,140	59	11.5	1	1.6
Over 20	58.1	29,540	168	5.7	1	0.58

Although toxin-antitoxin had been used comparatively little in the city, questionnaires were mailed, January 10, to 112 physicians as to whether or not they had used toxin-antitoxin, whether any cases developed following its use, whether the patients had had all three doses, and how long a period had elapsed after the third injection before the disease developed. Sixty-seven physicians, or approximately 60 per cent. of those to whom questionnaires were sent, submitted replies. Twenty-seven reported that they had immunized a total of 489 persons. Four physicians had cases develop after its use, the time elapsing between the third injection and the development of the disease being sixteen days, four weeks, six weeks and eight weeks. The four patients had all three injections of toxin-antitoxin, but were not given the Schick test afterward.

Fourteen deaths were reported, a case fatality of 1.76 per cent. One death was of a patient aged under 1 year; one, 26; one, 17; one 9, and the remaining ten were between the ages of 1 year and 5½ years. Twelve of the patients who died had laryngeal diphtheria. On the histories obtained the patients who died averaged 6.2 days sick before death. Antitoxin was not used in four cases; in two of these cases the disease was so far advanced that the physician decided it would be of no value. In six of the cases, the patients had each been ill with the disease seven or more days before a physician was called.

During the months of September and October, cultures were taken of the children of twelve of the city schools, a total of 2,745 children; 132, or 4.8 per cent., were found positive; 119, or 4.33 per cent., were carriers, and the remaining number (thirteen) were or developed into active cases. Additional numbers of carriers were detected, both among children and among adults, so that the total number of carriers discovered was 157. Of the total number of carriers, only eighteen, or 11.4 per cent., gave a history of ever having had diphtheria. In thirty-five cases, or 22.2 per cent., a history of diphtheria was obtained of some other member of the family other than the carrier, while in 104 cases, or 66.2 per cent., no history of diphtheria was obtained in either the carrier or any other member of the family.

October 18, in one school, cultures of 246 children were taken, with the result that seventeen showed diphtheria bacilli when the cultures were examined the following morning. These children were sent home at noon, i. e., within twenty-four hours of the time the cultures were taken. Within twenty-four hours, one of the children who had been sent home developed laryngeal diphtheria; forty-eight hours later a second child developed the disease, and within ninety-six hours a third one developed diphtheria. Five days after the children had been sent home, there developed, in a family in which one child was a carrier, an active case of diphtheria, and within two days two more children took sick with the disease. Yet, throughout the illness of the three children, the carrier showed no active manifestation of the disease, except the presence of diphtheria bacilli on culture.

Release of carriers was made after two consecutive negative cultures, twenty-four hours apart. Twenty-one persons, or 13.3 per cent., were released at the end of one week after the diagnostic culture had been made; sixty-three, or 40.1 per cent., were released by the end of the second week; forty-two, or 26.7 per cent., were released by the end of the third week; twenty-three, or 14.6 per cent., were released by the end of the fourth week. Only eight carriers, or 5 per cent., remained under quarantine after four weeks. We find, therefore, that 126, or 80.2 per cent. of the 157 carriers, were released by the end of three weeks. A virulence test was not made in any case.

CONCLUSIONS

1. The opening of the city schools was a factor in the spread of the disease.
2. The mortality was low.
3. The diphtheria carrier is an important factor in the continuation of an epidemic.
4. The disease attacked a large percentage of children of advanced age.

AN UNUSUAL ORBITAL TUMOR*

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In this paper we present the clinical history and microscopic findings of an unusual case of orbital tumor. The diagnosis was not made clinically, nor can one be ventured at present.

REPORT OF CASE

History.—C. L., a man, aged 30, was referred to the university hospital from the outpatient department because of an unusual orbital tumor of the left side. There was nothing of note in the family history; no trace of familial tuberculosis, carcinoma, heart, kidney or mental disease. The patient was born in California, and had spent most of his life there. He was a street-car conductor. He had measles at 9 and a severe bronchitis at 20 which had left him with a chronic nasal catarrah and asthma; otherwise he had always been in good health. Venereal diseases were denied. His habits were good. He had a tumor of the left cheek removed five years before; no other operations. His average weight was 140 pounds (63.5 kg.). Under the left eye was a swelling, first observed nine years before. It had gradually increased in size until at present it seemed to extend throughout the entire lower lid. There had been no disturbance of vision and no pain, the only symptom being at times a mild epiphora. The increase of the mass had been gradual, and without remission or temporary diminution in size. Aside from an occasional attack of asthma, his general health had been very good. Because of the disfigurement, the patient had been unable to secure employment. At the time of his respiratory infection, eleven years before admission, a small swelling was observed on the left cheek, which gradually increased until it became the "size of a small lemon." Because of cosmetic disfigurement, the tumor was excised five years before admission. He was told that the tumor was not malignant. Six years before a similar tumor developed in the right cheek, which had not appreciably increased in size. There was nothing of interest in the history of the central nervous, cardiorenal, gastro-intestinal or genito-urinary system.

Fig. 1.—Front view of patient, showing tumor of left lower lid; also fulness of cheek and upper lid.

Fig. 2.—Side view of patient.

Physical Examination.—The patient was well developed and well nourished. There was a definite swelling of the upper and lower lids on the left side, and the upper right lid presented a definite fulness. The cheeks were rather full, particularly on the right side. The skin was smooth and fair, with many freckles over the forearm and face. There was a long linear scar in the left cheek. The hair was red, and rather coarse and thick. Both lacrimal glands were palpable. The preauricular gland on the left side and the sublingual glands also were palpable. In the right cheek, felt best through the buccal mucous membrane, was a tumor which was firm, regular, and in some ways resembled an enlarged accessory parotid gland. The nose and ears were normal. The teeth were in poor condition with a great deal of dental work. The tonsils were somewhat hypertrophied. On the left side of the neck were many small, shotlike posterior cervical glands. There was adenopathy of one large and several small axillary glands on the right side. The chest, heart and lungs were not remarkable. The abdomen, extremities, genitalia and reflexes were normal. The blood pressure was: systolic, 115; diastolic, 80. Blood examination revealed: hemoglobin (Sahli), 90 per cent.; red blood cells, 5,320,00; white blood cells, 10,200; polymorphonuclears, 65 per cent.; red blood cells, 5,320,000; white blood cells, 10,200; polymorphonuclears, 65 per cent.; small mononuclears, 31 per cent.; large mononuclears, 4 per cent.; eosinophils, 2 per cent. The urine was normal, with no albumin, sugar or casts. The blood Wassermann and Pirquet tests were negative.

Roentgen-ray examination of the skull revealed a calcified pineal; sella small and roofed over, and a large sphenoidal sinus. The heart was small, and central; there were very heavy hilum shadows, with marked fibrosis extending along the bronchi. There was pleural thickening around both tops. There was interlobar pleurisy on the right. The conclusion was that there were fibrotic changes in the lung.

* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Eye Examination.—Vision of the right eye was 0.8; of the left eye, 1.2(?). There was a fulness of both lids of the right eye; aside from the lacrimal gland, no tumor mass was palpable. The conjunctiva, cornea and fundus were negative. Examination of the left eye revealed: upper lid full, lacrimal gland palpable. There was a definite swelling of the entire lower lid. On palpation, a rather firm mass was felt, which was not attached to the skin, was not compressible, and extended throughout the lower lid and apparently into the orbit. There was a definite yellowish xanthoma-like color over this area, with dilated venules in the skin. There was slight limitation of the vertical movements. In the conjunctiva at the temporal side was a small degree of chemosis, with tortuous superficial veins. On the cornea at the temporal side of the pupillary area were several superficial scars. The fundus was negative.

Exophthalmometer: Right eye, 25 mm.; left eye, 28 mm.

The perimetric fields were normal. Tension was normal.

Pathologic Examination.—The report of the previously removed tumor was obtained through the courtesy of Dr. Robert B. Drury of Columbus, Ohio. The pathologist reported the tumor as nonmalignant lymph glands.

Clinically, a positive diagnosis was impossible. Because of the chronic enlargement of the lacrimal and other glands, Mikulicz's disease would not be ruled out. The yellowish color made the consideration of xanthoma necessary, but the evidence was insufficient to warrant the diagnosis of multiple xanthoma. The other possibility considered was that of fibro-angiosarcoma of slow growth.

It seemed advisable to remove a small portion of the tumor for pathologic diagnosis. Through a small incision, the tumor was exposed. It had a definite xanthoma-like color, and was firm and directly under the skin but not attached to it.

Pathologically, it was impossible to make a definite diagnosis. The tumor contained considerable fibrous tissues and also some xanthoma-like cells. Dr. G. Y. Rusk of the University of California Pathological Department and also Dr. Ophuls of Stanford University refused to make a diagnosis.

A week later the tumor mass was excised through an incision parallel to the lid margin. It was not encapsulated

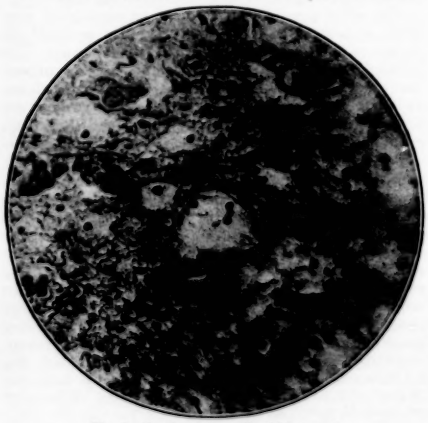

Fig. 3.—Xanthoma-like cells (high power).

and apparently not attached to any of the orbital structures, although it extended well back into the orbit. It was found expedient to bisect the mass, and we removed the entire facial portion and dissected below Tenon's capsule approximately 100 mm. between the globe and lower orbital bony rim. Palpation of the periocular tissue gave induration, but we did not consider further radical excision, as no gross evidence of malignancy was present and further removal would have involved an exenteration of the orbit. Hence we cannot state definitely whether or not the growth had a direct connection temporally with the orbital portion of the palpebral gland. Portions of the tumor were put into various fixatives, and, in addition, a small piece was sent to the bacteriologic laboratory for culture.

The patient developed a mild influenza two days after the operation, but made an uneventful recovery.

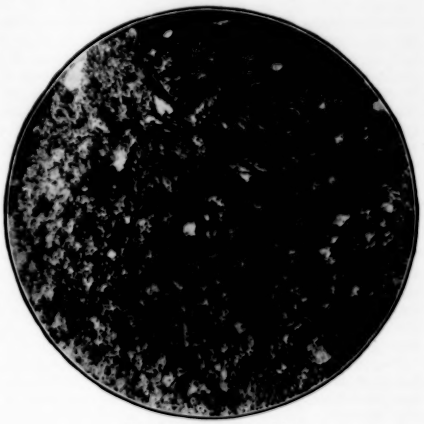

Fig. 4.—Xanthomatoid portion.

The culture of the tissue revealed *Staphylococcus albus* and *Staphylococcus aureus*, with a predominance of the latter.

Microscopic examination of tissue first submitted which, in the gross, was a butter yellow color, showed accumulations of large cells, with a finely reticulated cytoplasm and, in the meshes of this reticulum, accumulations of fat. In association with this xanthoma-like growth there was found considerable fibrous tissue reaction and rather extensive infiltration, with lymphocytes and plasma cells. This, however, was irregularly disturbed. Also in the fibrous tissue more particularly, there were a number of ill defined multinucleated cells, but neither these cells nor the general tissue reaction type were such as to suggest tuberculosis. It did, however, rather suggest a chronic inflammatory process.

The tissue received from the operation at which the tumor-like mass was removed was fixed in formaldehyd and Zenker's fluid. Cultures were also taken.

The cultures yielded a mildly chromogenic, nonhemolytic staphylococcus in pure culture.

At the time of operation the growth was extensively adherent, superficially presenting the same butter yellow color, but on section the fibrosis caused most of the center of the growth to be white and fibrous looking.

Microscopic examination of numerous sections from this material again revealed the xanthoma-like cells (Figs. 3 and 4), in places in relative abundance, in others with rather marked intersection by connective tissue or a rather hyaline type; in still other places the fibrous tissue occurs alone. Especially present in the normal fats of the part as well as scattered through the fibrosis was again found the extensive inflammatory reaction consisting of invasion with lymphocytes, plasma cells, and a marked number of eosinophils (Fig. 5). Again, the giant cells were observed, small, often compressed looking, and lying principally scattered in the fibrous tissue (Fig. 6). Again nothing suggesting a tuberculous reaction was seen. The diagnosis in this case seemed difficult; the question was whether to consider the process primarily a xanthoma with secondary inflammatory reaction and fibrosis, or whether the process was primarily inflammatory with secondary alteration in the peripherally situated portions, causing a reaction in the fat similar to what one occasionally encounters in fat tissue, as the xanthoma-like nodules at times present in

infected areas in breasts. The material was shown to Dr. Ophuls, who was inclined to consider the mass among the xanthomas, but I preferred not to venture an absolute diagnosis.

The diagnosis was: xanthoma with infection (*Staphylococcus aureus*) or xanthomatoid reaction based on chronic infection, as above.

COMMENT

In reviewing the case, the possibility of two separate entities must be considered, namely, Mikulicz's disease and a separate tumor of the lower lid. From the pathologic report of the tumor previously removed, it is evident that its nature is vastly different from the tissue removed by us. It is described as nonmalignant lymph glands and has the possibility of being a lymphoma and merely part of a chronic Mikulicz's disease. As described by Mikulicz,[1] the disease is a symmetrical enlargement of the lacrimal and salivary glands, chronic in character and with, as a rule, no systemic disturbances. The parotids and accessory parotids, submaxillary and in many instances the sublingual as well as the preauricular glands have been enlarged. In this case these glands were all larger than normal and readily palpable. Figure 1 also shows the suggestion of the broad cheeks, and the "bloodhound eyelids" described by Ziegler.[2] Posey's [3] case showed marked dental decay, while Kayser's [4] showed no systemic infection. In Randolph's [5] report, the enlargement of the glands was not simultaneous. Meller and Snegireff [6] emphasized the excessive hypertrophy of the tonsils. As the case described has definite features in common with the foregoing, we must consider the possibility of Mikulicz's disease in addition to the localized tumor of the left lower lid. Dr. E. I. Bartlett of the surgical department also considers this probable.

Fig. 5.—Fat with inflammatory infiltration.

While the tumor removed has some of the characteristics of multiple xanthoma as described by McCallum,[7] Pollitzer,[8] Sikemeier [9] and others, it is apparently not multiple, as the other tumors do not resemble that of the lower lid. Ewing [10] describes them as occasionally appearing in the lid first and later in other localities. Multiple xanthoma differs markedly from the usual xanthoma palpebrarum, as shown by Unna [11] and Virchow.[12] The histologic structure of our tumor is not typical of the usual xanthoma, although clinically there was definite suggestion of a xanthoma-like color.

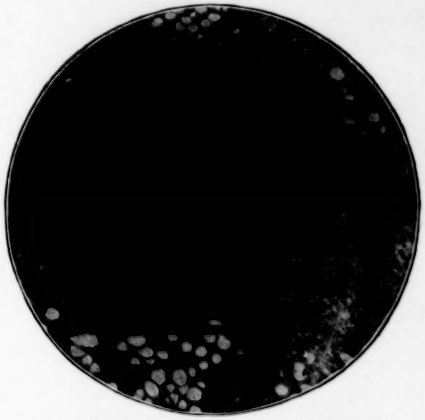

Fig. 6.—Xanthoma and fibrosis, with small multinuclear cells.

The other possibility that must be considered seriously is that of a granuloma. Culture revealed the presence of *Staphylococcus albus* and *aureus*. The unusual number of giant cells, together with the inflammatory reaction, is strongly suggestive of a granuloma. Delafield and Prudden [13] state that some authors are disposed to class together, under the name of infectious granuloma, lesions produced by micro-organisms, certain phases of which are characterized by a localized, usually slow, nodular growth tending toward necrosis. A number of pathologists reserve the term granuloma for tuberculosis; yet, as Stengel Fox [14] points out, the giant cell is not characteristic of tuberculosis, as it may be found in many specific inflammations and also in foci of chronic irritations due to foreign bodies as well as in tumors. The type of granuloma due to conditions other than tuberculosis differs in failing to undergo caseation and in prominence of connective tissue new growth with some giant cells. The tumor, microscopically and bacteriologically, has some of the appearances of a granuloma, but clinically lacks the characteristic features as described by Wescott,[15] Pusey,[16] Wile [17] and others.

As to the final diagnosis, we must adhere to that of the pathologist, namely, xanthoma with infection

1. Mikulicz: Berl. klin. Wchnschr., 1888, p. 759.
2. Ziegler: Tr. Am. Ophth. Soc., 1909.
3. Posey: Ophth. Rec. **5**: 25, 286.
4. Kayser: Klin. Monatschr. f. Augenh., July, 1909.
5. Randolph: Ophth. Rec., 1904, p. 18.
6. Meller and Snegireff: Klin. Monatschr. f. Augenh., August-September, 1906.
7. McCallum: Textbook of Pathology.
8. Pollitzer: New York M. J. **8**: 70, 72, 1899.
9. Sikemeier: Frankfurt. Ztschr. f. Path. **14**: 428, 1913.
10. Ewing: Neoplastic Diseases.
11. Unna, in Ewing: Neoplastic Diseases.
12. Virchow: Virchows Arch. f. path. Anat., 1871, p. 52.
13. Delafield and Prudden: Textbook of Pathology.
14. Fox, Stengel: Textbook of Pathology.
15. Wescott, C. D.: A Case of Granuloma Pyogenicum Affecting the Eyelid, J. A. M. A. **66**: 2067 (June 24) 1916.
16. Pusey: J. Cutan. Dis., December, 1906.
17. Wile: J. Cutan. Dis., December, 1910.

(*Staphylococcus aureus*) or xanthomatoid reaction based on chronic infection. The case is of interest because of the unusual clinical and pathologic findings and, in particular, because of the probability of a separate clinical entity, that of Mikulicz's disease.

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LEGAL STATUS OF PHYSICIANS AND SECTARIANS *

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Probably no subject has given rise to so much acrimonious discussion and bitterness of feeling as the efforts of physicians to restrict the practice of medicine to certain individuals or to certain classes. This problem is apparently no nearer permanent solution than it was fifty years ago. The proceedings of our state associations show that every year the adoption of a new medical practice act or of an amendment to the existing medical practice act is among the subjects discussed. At every session of the state legislature, bills creating new practice acts or amending existing laws, and special bills providing for the registration of osteopaths, chiropractors, naturopaths, drugless healers, mental healers and other fantastic sects occupy a considerable share of the session. There is no other subject on which the medical profession in the last thirty years has expended an equal amount of time and energy. Yet, in spite of all our efforts, there is not a single sect or cult, no matter how absurd or fantastic, which has failed ultimately to secure the so-called legal recognition which it sought, in spite of any objection which the organized medical profession might present. Two explanations are usually given for the failure on the part of physicians to prevent the passage of such measures. These are lack of understanding on the part of the public, and indifference and lethargy on the part of the medical profession.

In spite of all our efforts, this question today occupies as large an amount of time and absorbs as much energy as it did twenty-five years ago. That it has not as yet been satisfactorily solved is generally admitted. That its discussion is hampered by our own prejudice is also true. Rarely, if ever, is this question discussed in professional circles with the thoroughness, the absence of personal feeling and the readiness to accept a recognized truth from any source which characterizes our discussions of the scientific questions of medicine. This is largely because, whatever may be our lack of prejudice on other questions, on this subject we are ourselves sectarians and partisans. Yet its practical importance cannot be denied. It is not a scientific question, but an administrative and social question of importance, not only to physicians, but also to the public. Is it not, therefore, worth while for us to consider it, not in the light of our personal and professional prejudice, but rather as an abstract problem, a permanent solution of which would render unnecessary any further waste of time in the needless and profitless efforts of the past? Is it not possible that both the indifference of the public and the lethargy of the profession may be entirely justified, that the conventionally accepted attitude of the medical profession on this subject for the last forty years may be based on erroneous premises and inaccurate reasoning, and that, instead of endeavoring to educate the public to our point of view, we might rather attempt to learn something from the public point of view?

LEGAL REGULATION

The history of the efforts to restrict the treatment of the sick to certain individuals goes far back into the past. In a primitive civilization or in a simply organized state of society, no restrictions on professions or occupations are necessary. Each individual does what he is able to do for his own benefit or for the benefit of others, without any hindrance. It is only when society has become relatively complex that regulations for the government of various trades, industries, occupations and professions become necessary. There is, consequently, nothing inherently wrong in any individual pursuing any occupation or profession which he may see fit. As society increases in complexity, regulation of many human activities becomes necessary. The violation of such regulations does not constitute inherent crime, as does murder, stealing or various other acts which are in themselves criminal.

The regulation of professions, occupations and trades, legally speaking, comes under what is known as the police power of the state, characteristics of which are that it aims directly to secure and promote public welfare, and that it does so by restraint and compulsion. Under the police power of the state comes a vast multitude of subjects which increase as society becomes more complex. Everything having to do with licenses, reports, registration, prohibition, commerce, safety, public health, public order and comfort, public morals, the regulation of capital, public corporations and property comes under the police power of the state. The only object and the only justification for the exercise of police power is the greatest good to the greatest number, or, more concisely, the general good. Acts which are regulated by police power are, in the majority of cases, acts which in themselves are not culpable and which are wrong only in a statutory sense; that is, because it has been found best for the public good to provide certain regulations for such acts.

Legally speaking, the regulation of the practice of medicine comes under the same classification as the regulation of any other occupation, profession or trade or of any other subject which must be regulated or restricted for the public good. Regardless of the provisions or limitations which may be made, the practice of medicine without a license is never a crime, but only a misdemeanor. It is in the same class as running an automobile or keeping a dog without a license, exceeding the speed limit, permitting a factory chimney to smoke, or violating any other of the thousand and one restrictions and regulations which modern society has evolved for its own protection.

Without attempting to discuss the history of medical practice acts in this or other countries, all of which I have considered at length in a previous article, it is interesting to note that the present system originated with Dr. N. S. Davis in the early seventies. In the hope of elevating the standard of medical education, Dr. Davis urged the creations of boards of examiners to pass on the qualifications of applicants, entirely separate from the medical faculty which had given the instruction to the student. In other words, as Dr Davis put it, there should be a complete separation

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

between the educating and the licensing bodies. His demands, which can be found in the proceedings of the American Medical Association from 1867 to 1873, were for the creation of a board of examiners by the state for the examining and licensing of medical college graduates. As a result of his agitation, Texas in 1873, Kentucky and New York in 1874, New Hampshire in 1875, and California and Vermont in 1876, passed laws creating such boards. During the next twenty years, every other state passed some kind of a law on this subject, so that by 1895 there was in practically every state a board created by special enactment charged with the duty of examining and licensing physicians and surgeons.

While differing considerably in details, practically all of these laws are based on the same principles and have the same general characteristics. They have been enacted almost entirely through the influence and at the demand of the regular medical profession. To discuss the numerous laws which have been enacted in the last forty-nine years is impossible. In no state is the original practice act still in force. In each state there has been a succession of laws and amendments enacted making changes from time to time. In the forty-eight states more than 250 separate laws on this subject have been adopted during this period. In 1907, I abstracted and published in the *American Medical Association Bulletin* all of the medical practice acts then in force, and endeavored to summarize the average law on the subject. The synopsis, which I designated as a composite picture of medical legislation at that time, is equally applicable today, as the general character of these laws has changed but little during the last fifteen years.

No sooner were these medical practice laws enacted than there arose many cases which had to be settled by the courts. These involved prosecution of individuals accused of practicing medicine without a license, efforts by the board to revoke licenses once granted or demands, on the part of persons denied licenses, for a review of their cases by the courts, and the securing of what they considered to be their rights. It is significant that in the ninety years from 1780 to 1870, there had been only twenty-eight decisions in this field in all states, while, in the fifty-two years since 1870, there have been more than 800 cases passed on by supreme courts. In the early seventies, the suits involved mainly the rights of homeopaths and eclectics to practice medicine and to be represented on the examining boards. The appearance of the osteopaths in the late eighties caused a large amount of litigation and the rendering of many decisions, just as did the advent of the chiropractors later on. Each new sect as it appeared aroused opposition, prosecution and appeals to the higher courts, with the final rendering of decisions which established the legal status of the sect or cult, whatever it might be.

COURT DECISIONS

To discuss these eight hundred supreme court decisions in detail is impossible. In 1915, the Council on Health and Public Instruction published a digest of supreme court decisions on the state regulation of the practice of medicine, up to that date. In this digest these decisions were abstracted, indexed, analyzed and summarized. The decisions which have been rendered since that time are in the main simply confirmatory of the previous decisions, and do not in any sense alter the principles laid down.

The final decisions of the courts of last resort are recognized as final authority on any legal question. What are the conclusions which can be drawn from the opinions of the various supreme courts on this subject?

They hold that the sole justification for the enactment of medical practice acts is the protection of the public from incompetent and unscrupulous persons; that the state has a right to enact laws making any reasonable standards for the practice of medicine; that the object of such laws is not the benefit of the physician, but the protection of the public; that it is not the function of the state, through either its legislature or its courts, to decide scientific questions or to determine the scientific value of one school or method of practice as compared with another, or to decide the relative value of different forms of treatment; that the sole interest of the state in the practice of medicine is the regulation of medicine as a business; that the legislature is justified, for the public good, in establishing and enforcing reasonable regulations under which such business may be carried on; that the qualifications and conditions exacted must be reasonable and equitable and must be the same for all those who desire the same privileges, and that the function of examining boards is to test the qualifications and knowledge of applicants in order to determine whether they may be properly entrusted with the treatment of the sick.

MEDICAL PRACTICE ACTS

The accumulated experience of the medical profession on this question in the different states for the last fifty years, and the history of the various experiments that have been tried, and of the attitude of the public, the courts and the legislatures, forms an interesting chapter in the history of applied medicine. To discuss them in detail, under present limitations, is impossible. Summing up the situation, we find that after years of effort and experiment, the essential problem is no nearer solution than it was in the beginning.

Each state has on its statute books a medical practice act, which has been secured at great expense of time and labor on the part of physicians. It is in constant need of defense; it is not effective in accomplishing the purpose for which it was enacted; it is not understood or supported by the public for whose protection it was passed; it is of no special value to physicians because it handicaps the honest practitioner, but does not deter the faker or the charlatan, and it does not prevent any new sect, which may arise, from overriding its provisions. The public, feeling that such laws are for the benefit of physicians, is not and never has been especially interested in their enforcement.

By our insistence on the passage of these laws and through keeping their administration in our own hands, we have strengthened and confirmed this public misconception. As a result, we now have a cumbersome and ineffective machinery, supported largely at the expense of physicians, which has to be defended continually against assault, which occupies a large part of our time and energy, which might better be devoted to better purposes, keeps us in a false position before the public and arouses and keeps alive antagonism against the medical profession. The present laws do not accomplish the purpose for which they were created, and the efforts to adopt and administer them have in many states dragged the medical profession into politics and have prostituted our scientific organizations without any compensatory benefit to us or to the public.

Is it necessary to pursue this indictment further? Let us look at the question from an outside point of view and apply it to some other class. Suppose that the owners of automobiles should appear each year before legislatures, asking for the passage of laws restricting the use of automobiles to certain individuals; that they should insist that the membership of all boards and the appointment of all administrative officers in carrying out these regulations should be controlled by automobile owners, and that only those persons who owned a certain kind of automobile should be permitted to have a license. Can you imagine the shout of derision that would go up from the people of the state at such a request? Yet this proposition is identical with the method now existing for the regulation of the practice of medicine.

LICENSES

It seems impossible to disabuse the minds of physicians, who have grown up under the present licensing system, of the idea that a license is an official endorsement by the state of a system of treatment. Evidently, the followers of the various sects have the same idea, since they present bills before legislatures asking for special boards of examiners and special standards of education and qualifications on the plea that they want recognition from the state—as though the legislature were a jury qualified to pass on scientific questions, and the passage of a bill creating a board of examiners for one sect or another amounted to a certificate of merit or an endorsement of the methods followed. Such a conception shows a complete misunderstanding of the legal character of medical practice acts. A license to practice medicine is not a recognition of anything. It is simply a permit to do something. Legally, it is exactly in the same class as a license to run an automobile or to own a dog. No one would claim that an automobile license constituted a recognition of an Overland, a Pierce-Arrow or a Ford as being any better than any other machine on the market. Certainly no intelligent person would claim that a dog license was an endorsement or a recognition of an Airedale, a Boston bull or a collie. They are all of them simply permits by the state to do something which the state has restricted for the public good. A license to treat the sick is simply a permit from the state to carry on a certain business which has been by statute restricted to those holding such licenses. The license is evidence of the fact that they have complied with certain restrictions which the state, for the public good, has seen fit to require.

It is, of course, obvious that if there were only a single school of medicine and a single class of practitioners, there would be no difficulty regarding licenses. The problem of sectarianism is, therefore, inseparably involved in the discussion of the regulation of the practice of medicine. It is characteristic of each generation of physicians to regard the sects and cults of their own day as the only ones that have ever existed. To the physician of today, especially the man under middle age, homeopathy and eclecticism are simply names. Osteopathy is something that has existed throughout his entire professional activity. Chiropractic, as the newest, the most absurd of the many sects in medicine, is the only one which arouses the antagonism of the present generation of physicians. Yet history shows that sects of various kinds have been a constant accompaniment of the medical profession.

CHARACTERISTICS OF SECTS

When the characteristics of all the sects in medical history are tabulated, it will be seen that they follow a surprisingly uniform course. Practically every medical sect, like every religious sect, arises through the peculiar teachings of some individual, who bases a new and strange system of healing on his own fantastic ideas, rather than on the accumulated knowledge, experience and wisdom of the human race. Without going back of the last hundred years, it is only necessary to mention Samuel Hahnemann as the founder of homeopathy, William Thompson in eclecticism, Mrs. Eddy as the high priestess of Christian science, Andrew Still as the originator of osteopathy, and Palmer, the magnetic healer of Davenport, Iowa, who invented chiropractic.

A second characteristic of sectarianism is that each cult starts with a small group of enthusiastic followers, personal disciples of the leader, who throw themselves into the propaganda with all the enthusiasm of religious fanatics. The parallelism between medical and religious sectarianism is indeed very marked. This group of followers grows first through personal contact and later through various methods of promotion.

The third peculiarity is that each sect evolves some new and fantastic theory regarding the cause of disease. Samuel Hahnemann taught that all disease was caused by the itch; Mrs. Eddy found the explanation for all mortal ills in mortal mind; Still taught that the human body was a machine and that all afflictions were due to the dislocation of some part; Palmer went Still one better and taught that all abnormal conditions of the body were due to the dislocation of one of the spinal vertebrae. It is worthy of note in this connection that all of these sects personify disease and regard it as an entity, rather than as any one of a great variety of abnormal conditions; that they all seek to attribute disease to a single cause, and to remove it by applying a single method of treatment.

A fourth peculiarity, common to all medical sects, is that they have a regular order of development and decay. Starting originally with the leader, who is regarded as inspired, the first generation of followers accepts the new method of treatment as a solution of all human ills. Later on, they recognize the limitations of their method and learn by practical experience that there are many conditions to which their methods are not applicable. As time goes on, their teachings are modified by force of circumstances and by contact with the practical world. They gradually drop their fantastic notions; recognize the limitations of their methods; profit by the general knowledge of the medical profession and, in time, lose their distinctive characteristics and merge themselves in the great mass of physicians. This has happened in our own day with the homeopaths and the eclectics. Osteopathic schools are now offering courses in minor surgery, obstetrics and, in some cases, general surgery. In ten or fifteen years from now, it is safe to say that such osteopathic schools as still exist will be giving the best courses they can offer on diagnosis and treatment and, in the next twenty-five years, osteopathy will have become a name without any meaning—just as homeopathy and eclecticism have today.

This, again, is in line with religious sectarianism, which, like medical sectarianism, originates in an individual, is promoted by his immediate disciples, starts out to conquer the world, and eventually settles

down into one of the innumerable sects of Christendom. Ask the average Presbyterian who John Calvin was and what the seven points of his theology were, and he couldn't tell you, to save his soul from perdition, even if he knows he is one of the elect. How many Episcopalians know why their church separated from the Church of Rome? How many Methodists can tell you anything definite about John and Charles Wesley, or how many Baptists know why they believe in immersion rather than sprinkling? Twenty-five years from now the Christian science church will be indistinguishable from other orthodox churches. Mrs. Eddy, before her death, recognized the limitations of her own teachings, and advised her followers to consult surgeons in cases of broken bones. The mother church at Boston long since instructed its healers to comply with state and municipal regulations regarding infectious diseases. Christian scientists go to dentists for defective teeth and to oculists for errors of refraction. To expect the followers of either religious or medical sects to be consistent or logical is to expect the impossible. If these people had consistent or logical minds, they would not be sectarians.

THE QUESTION OF PATERNALISM

One of the principal reasons for antagonism to medical practice acts has been the opposition of the followers of these various cults and sects, who felt that their liberty was being interfered with by the enactment and enforcement of medical practice acts. This has given rise to various local movements and, at the time of the agitation for the passage of the Owen Bill in Congress—from 1910 to 1914—gave rise to a national movement known as the National League for Medical Freedom. As is usually the case in sectarian controversies, both the knowledge and the methods of these agitators were open to criticism. At the same time, it cannot be denied that there is a certain amount of justice in their position. Huxley, many years ago, when the British medical practice act was under consideration, stated clearly that it was not desirable for the state to attempt to substitute restrictive legislation for individual judgment on questions relating solely to individual rights, and that it was better, in the long run, for each person to be responsible for his own well-being and to be free from any paternalistic supervision by the state. The courts have recognized in all their decisions that there are three classes who are entitled to special protection. These are, first, the child who is below the age of intelligent judgment and is, in the eyes of the law, an infant and a ward of the state, and as such is entitled to protection. This principle was emphasized by the supreme court of New Jersey in the celebrated case in which the parent, who was a Christian scientist, was brought before the court for permitting his child to die from diphtheria on account of the parent's disbelief in antitoxin. The court, while recognizing the right of the parent to his own belief, denied the right of the parent to sacrifice the child, whose life might have been saved by recognized scientific methods.

The second class entitled to special protection consists of those who, through lack of mental development or through mental affliction, are incapable of exercising sound judgment. The insane and the feebleminded, like the child, are wards of the state and are, as the courts have repeatedly held, entitled to the best care available scientific knowledge can give them.

The third class subject to special consideration, not on its own account, but for the public good, consists of those persons suffering from communicable diseases which may be a source of infection to others. Here the public good demands that they be given such care and treatment as will render them harmless to the community, and this can, if necessary, be carried even to the restriction of their liberty.

But, with the exception of the child, the insane person and the person suffering from a disease dangerous to others, any sane adult who has a bodily affliction which is not a danger to others has a right to control his own body and to take such treatment or refuse such treatment as he may see fit. If he wishes to consult an osteopath, a chiropractor, a Christian scientist, a voodoo doctor, a witch doctor or a pow-wow doctor; if he wishes to treat his rheumatism by carrying a horse-chestnut or a potato in his pocket; if he prefers incantations to scientific treatment; if he likes prayers better than powders, or if he wants charms rather than surgery, he has a perfect right to do as he sees fit, and the state has no right to compel him to submit his body to any treatment that he does not desire. If he errs through ignorance, he must suffer the effects of his own poor judgment, just as he would in any other activity in life. Physicians must recognize this right on the part of the layman, just as they assert their own right to individual judgment on other questions.

BASIS OF INTELLIGENT AND EQUITABLE REGULATION

Does this mean, then, that there should be no regulation of physicians or sectarians? By no means. Undoubtedly, there should be intelligent and equitable regulation by the state for the public good. What, then, is the remedy for the present absurd and unsatisfactory situation? It is for the medical profession to surrender to the public a function and a responsibility which it never should have assumed. If the people, for their own protection, desire to impose certain restrictions on those who wish to treat the sick as a profession for compensation, then it is the business of the public to determine the conditions and administer the machinery by which such regulations shall be carried out. Whether an individual is qualified to treat the sick is an educational and not a sectarian question. Its enforcement should be in the hands, not of physicians, but of the educational authorities of the state.

Having complied with the requirements of the state, which should be as high as they can be made, consistent with the public welfare, and having received a license, each person so licensed should be at liberty to follow any method of treatment or school of practice which he may see fit, subject only to the common law limitations on professional responsibility. Any physician who undertakes to treat the sick is subject, under the common law, to definite liabilities for the character of his treatment and of his services. But there should be one standard for all, and the task of defending such laws and elevating the standard belongs to the public and not to physicians. If the rights of physicians are invaded, then we can go before legislative bodies and frankly and openly fight for our own interests. If the requirements are unfair or unreasonable in any way, then physicians can, with perfect consistency and with a clear conscience, appear before legislative committees and insist that reasonable provisions be adopted. But the protection of the pub-

lic belongs to the public itself, and it can be safe in no other hands.

It is difficult to understand when or how the fiction arose that the medical profession is a divinely authorized and chosen class, charged with the protection of the public health and public welfare, even against the desires and the wishes of the people themselves. Such a doctrine savors far too much of imperialism to be particularly popular at the present day. Abraham Lincoln was emphatically right when he said he did not believe any man was good enough to govern any other man against his will. I do not believe that any man or any class of men is good enough or wise enough to be charged with the responsibility of protecting the people without their consent. We have in the last fifty years been assuming a burden which did not belong to us. To this extent we have pauperized the people by depriving them of their own responsibility. The sooner this responsibility is returned to the people, where it belongs, the better it will be for the public and the medical profession.

Recognition of these principles has been slowly growing in the last fifteen years. In New York, the regulation of all occupations, professions and trades is under the jurisdiction of the board of regents of the state university. In 1911, Tennessee provided for a board of three educators as a board of preliminary examiners. But there was no general recognition of the duty of the state to regulate professions and trades through a definite department of the state government until 1916, when Illinois adopted what is known as the Illinois Code, creating as one of nine departments of the state government a department of registration and education with an educator at the head, which was authorized to examine and license physicians, surgeons, dentists, pharmacists, nurses, embalmers, optometrists, barbers, midwives, architects and structural engineers. Included in this list, by inference, was the entire group of so-called drugless healers. Nebraska and Idaho have adopted similar laws. The Illinois law today stands as the most complete and logical method for the solution of this vexing problem that has as yet been found. I would commend a careful study of the Illinois Code to all those interested in this question.

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CONCLUSIONS

Summarizing the discussion of this subject, we are led to the following conclusions:

1. The regulation of those desiring to treat the sick should be based on educational rather than sectarian standards. Such regulation should be administered by the state educational authorities. For economical and efficient administration, the regulation of all professions, occupations and trades supervised by the state government should be placed in the hands of a single state department, which should have as its head an educator of recognized standing and demonstrated executive ability. This department should have the power to appoint examining and advisory committees for each of the different groups, the general educational standards being under the control of the department, which should also control the actual granting of licenses, as well as prosecutions for violations of the law. In the smaller states, in which the creation of a distinct department of the state government would be difficult, for practical reasons, a board of examination and registration, consisting of three educators of recognized standing with power to appoint examining committees for the different occupations, professions, schools, etc., will best meet the local needs.

2. Whatever machinery for regulation is adopted, it should be recognized that the object for such regulation is the protection of the public, and that the people should pay for this protection as they pay for protection from any other danger. Such laws are emphatically not intended for the restriction of competition among practitioners. It is no more the business of the state to protect a physician against competition than it is to protect a drygoods man, a furniture dealer or a grocer. The only justification for restricting the liberty of any person is the public good. It follows, therefore, that the public should pay for this protection. Any scheme whereby a department or bureau of registration and examination is supported by fees is unfair, in that it places the expense of maintaining such a bureau on those who are restricted for the public good. Fees should be fixed at a nominal figure. All fees received for examinations or licenses should be turned into the state treasury, and all expenses of administering the laws and prosecuting violators should be paid out of the state funds by regular appropriations. Under the present system, in most states physicians are not only unfairly and unjustly restricted, but they are also compelled to pay the cost of their own restriction for the public good, a plan that is manifestly unfair and which should be abolished at the earliest possible moment. The people should pay for their own protection, and they should understand that they are paying for it and that they are entitled to it.

3. A third principle on which the medical profession should insist is that all persons desiring the same privileges should be required to comply with the same educational standards, without regard to the school from which they graduated or the sect to which they belong. Special sectarian standards are simply a back door to the medical profession, by which the sectarian endeavors to secure equal privileges at a lower cost. The moment equal educational qualifications are insisted on, sectarianism will be wiped out, since no one will elect a limited license as a sectarian if, for the same price in time and money, he can secure an unlimited license as a physician. In application, however, the converse of this proposition must also be recognized; namely, that all persons complying with the same standards are entitled to the same privileges. If the osteopath, the chiropractor or the drugless healer desires to perform all the functions of a physician, he should be required to possess exactly the same qualifications and comply with the same standards, but, having complied with such standards, he should then be allowed the same privileges.

It is not anticipated or claimed that the recognition of these principles or the adoption of the method best exemplified by the Illinois plan will result in a medical millennium, any more than the adoption of any other single law. This discussion is presented in the hope that it will, to some extent, throw light on this perplexing situation and will enable those physicians who are interested in better social and professional conditions to secure more satisfactory laws, to profit by the experiences and mistakes of the past, thus relieving the medical profession of the embarrassment and confusion in the public mind under which it has labored for half a century, and, especially, that it will enable

physicians, in the future, to conserve their strength and energies for professional and public activities, rather than to dissipate them in the useless and unproductive wrangling of the last half century.

ABSTRACT OF DISCUSSION

DR. WILLIAM C. WOODWARD, Chicago: Much of what has been said is based, it seems to me, on a misapprehension of the status of medical licensing boards. Such a board is not an agency of the medical profession, even though it is made up of physicians. It is an agency of the state, to carry out the will of the people as expressed by the legislature. It owes no duty to the medical profession that it does not owe to every one else in the community, and the medical profession has no right to command or direct its activities. The fact that the people entrust the work of such a board to medical men does not alter its nature or make the medical profession in any way responsible for it. Granted that the legislation enacted to regulate the practice of medicine has been unwise. Many laws we have passed have not represented the acme of wisdom. Are we to repeal them all? Why single out medical practice acts? Possibly we have not yet exhausted our wisdom with respect to medical practice acts, and possibly observation and reflection may invest us with new wisdom. The situation may not yet be so bad as to justify us in saying that the public—the state—is powerless to assist the individual in his efforts to protect himself and his family against medical quackery and fraud. The public has too substantial moral and legal interests in the work of the physician to permit the abandoning of efforts to regulate his qualifications. No one else has so good an opportunity as the physician for executing crimes and then concealing them, and for concealing the crimes of others—blackmail, abortion, the illegal prescribing of narcotics and of alcohol, fraudulent certification of births, stillbirths, illness, injury, insanity, and even of death—the doing or the concealing even of murder. And to suggest that we as physicians abandon our efforts to assist the people in formulating and maintaining proper legal standards for the protection of the public and for the good name of our profession will not appeal, I hope, to the medical profession as rational or even humane. Let down the bars if you will, and who in the coming generations will enter the medical profession? We as physicians are none the less citizens. Our professional relations give us better opportunities than have other citizens to see the danger in medical quackery and to point out how to avert that danger. If we neglect to do so, we shall fail in our duty to our fellow man.

DR. D. B. MCEACHERN, Chicago: I was very much interested in Dr. Green's discussion, but being of a more philosophical turn of mind, I should like to go back and trace the thing that was responsible for this condition other than the local aspects. Originally the priests of the temples of Aesculapius were the healers of the sick. The priests themselves were responsible for a great deal of the mysterious attitude toward the treatment of disease. Up to a very short time ago, physicians adopted a mysterious attitude in handling people who were ill. I might say, without attempting to antagonize religion, that the close relationship between religion and medicine is responsible for the present outcrop of sectarian medicine. This close relationship has broken down as the people have become rationalized. What is necessary is a comprehensive education of the public and the general practitioner as well, to develop what Zenker calls physiologic thinking. I remember an observation made by the late Dr. Oscar King that strikes me as the basis of it all, which is education. He said, "If you substituted in the teaching of all public schools some of the fundamental sciences, such as biology, John Alexander Dowie would have a hard time to make a living." The thing to do is to start in the public schools and educate the children.

DR. B. C. DARLING, New York: What Dr. Green has said is very true. It has always been hard for me to understand how these cults and sects got their start. They did this because there was no automatic provision for enforcement of the medical practice act. I am interested in the matter on account of the violation of the medical practice act, as radiologists, by roentgen-ray technicians and commercial roentgen-ray laboratories. In New York City the board of health has lately passed an amendment to the sanitary code in which it proposes to issue permits only to those properly prepared to handle roentgen-ray apparatus, and who are duly licensed physicians or dentists. The machines are becoming so powerful that following an improper treatment or diagnostic exposure, burns are more frequent and more severe. Law suits are so common that many insurance companies will not carry the liability insurance, in which case the layman technician or the commercial laboratories are neither professionally nor financially responsible. In such cases the referring physician may become liable to suit for malpractice on account of a burn or diagnostic error. The operator must know enough to protect himself and must know enough to protect the patient and the people living above and below. It is proposed to issue permits only to those qualified to practice medicine or dentistry, and they will be permitted to do only what they ask in the permit; if they ask a permit to do fluoroscopy, that is all they can do. A board of consultants has been established which will work with the board of health. New York State has passed a law making it automatic for the board of regents to cooperate with the attorney-general against irregular practitioners. Besides this, we should have annual registration, as recommended by Dr. Augustus S. Downing of the board of regents. It is the duty of the public rather than of the medical profession to see that their laws are enforced and their interest should be solicited. While we have had medical practice acts, the public has had only a false security and protection, for the act is never enforced.

DR. FREDERICK R. GREEN, Chicago: I did not say that the present method of regulating the practice of medicine is illegal, but that our present laws are not doing what they were intended to do. There never has been any sect, no matter how absurd or ridiculous, that sooner or later has not been able to get so-called legal recognition and authority to do what sectarians all want to do, viz., to treat patients for a fee. So long as the public and the legislatures regard these laws as purely for the benefit of physicians, sectarianism can never be controlled. Laws which are not backed up by public sentiment never amount to anything. I should like to tell you how the question has been worked out in Illinois, where a department of registration and education has been established whose function it is to regulate all occupations, professions and trades which the state restricts. There is, of course, no question as to the right of the legislature to create a board made up of physicians and, when appointed, they are acting as individual citizens and not as physicians. In the last forty-nine years the medical practice acts have not accomplished that for which they were intended, which is to exclude the unfit and admit those who are fit. The futile attempts to enforce those laws are putting us in a false position before the public and taking a large amount of time and money in each state to defend the medical practice laws. If the people want protection against undesirable men who practice medicine let them pay for it, just as they pay for police protection and protection against fire. Our efforts to enforce unsound laws put us in a false position before the public and prevent the proper appreciation of our efforts for the public good. Very few physicians take any interest in this question, yet it is of vital importance both to the profession and to the public.

Russia's Great Epidemics.—Of all countries in eastern Europe, Russia has suffered most from epidemics during the last four years, during which time about 7 million cases of typhus and relapsing fever, without counting the figures for the red army, were officially reported. The culminating point was reached in 1919 and 1920, when 4,917,000 cases of typhus and 1,259,500 of relapsing fever were officially recorded. The official figures, however, do not represent the total incidence, and must be multiplied by at least 2½ in order to obtain an approximate picture of the situation.—*Epidemiological Intelligence, Bulletin No. 3, Health Section, League of Nations*, June, 1922.

Clinical Notes, Suggestions, and New Instruments

REPEATED PERFORATIONS OF SMALL INTESTINE DUE TO FOCAL INFECTION

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History.—A woman, aged 40, was first admitted to the hospital, Sept. 17, 1918, because of general abdominal pain, most marked in the region of the right iliac fossa, with abdominal distention, rigidity and vomiting. The family history was negative. The patient had been married eighteen years, but had no children, and there had been no miscarriages. The menses, which began at 12, were of the twenty-eight day type, regular, with slight pain and backache on the first two days, the flow lasting from four to six days; there was no leukorrhea. The patient had always enjoyed good health and had never had any injuries; she had had most of the diseases of childhood. She drank coffee and tea moderately, and did not use alcohol or tobacco. The tonsils had been removed about two years previously, and about eighteen months before, a small cystic tumor had been removed from the right breast under local anesthesia. The pathologic report was that the tumor was benign.

The patient said that she had been perfectly well until the night before admission, except for furunculosis of the external auditory canal about ten days or two weeks prior to her present illness, and that she had not been feeling quite up to her normal standard for a day or two, had done a hard day's work of house cleaning, was very tired when she ate her supper, and had felt some slight abdominal pain. She went to a moving picture show thinking it would rest her; while she was in the theater, the abdominal pain became so severe that she had to leave. After reaching home she drank some hot water and soda, vomited, went to bed, and applied a hot water bag to the abdomen. The pain rapidly grew worse and she called her family physician, who administered a hypodermic injection of morphin. Her physician saw her the next morning. She had had a bad night, with considerable nausea and vomiting, and the pain had increased in severity. Another hypodermic injection of morphin gave no relief, and another physician was called in consultation. These two physicians decided that she had appendicitis and sent her to the hospital for immediate operation. Her face was ashen; the temperature was 100; pulse 120; respirations 36. Examination of the heart and lungs was negative. The abdomen was greatly distended and rigid. Blood count revealed: leukocytes, 17,800; polymorphonuclears, 88 per cent. The urine was clear and acid, with a specific gravity of 1.004, it contained a faint trace of albumin and an occasional pus cell, but no sugar. The preoperative diagnosis was ruptured appendix with peritonitis, and immediate operation was advised.

First Operation.—A long right rectus incision revealed free pus and an appendix normal except for congestion. The uterus, tubes and ovaries were normal except for a small fibroid on the fundus. There was a large quantity of free pus in the pelvis. The abdomen was greatly distended, and small intestine, with fibrinous exudate on the ileum, escaped from the wound. From 12 to 16 inches from the ileocecal valve, a perforation about the size of a match head was found. This perforation was surrounded by an indurated area about the size of a dime. An attempt was made to close the perforation with a purse string suture, but this pulled out. The perforation was then closed with interrupted silk Lembert sutures. A rubber drain was put into the pelvis. The wound was closed in layers, and the skin was closed with figure-of-eight silkworm-gut sutures.

The postoperative diagnosis was ruptured ulcer of the ileum from 12 to 16 inches from the ileocecal valve, of undetermined origin.

The patient had a rather stormy convalescence. She left the hospital six weeks after the operation, entirely well.

Second Operation.—April 16, 1919, seven months after her first admission, she was readmitted to the hospital on account of pain in the abdomen. She had been well since the operation for ulcer of the intestine in September, except that she had complained of gas pains and had had occasional attacks of cramps and nausea. Physical examination was practically negative except for some tenderness in the lower abdomen, more marked over the region of the appendix. Blood examination revealed: leukocytes, 12,500; polymorphonuclears, 70 per cent. Examination of the urine was negative. Temperature, pulse and respirations were normal. Roentgenograms of the gastro-intestinal tract revealed that the stomach, small intestine and colon were normal. There was marked tenderness over the appendix, which was club shaped, with somewhat narrowed lumen in the proximal portion. The roentgen-ray diagnosis was chronic appendicitis. On these findings we made a diagnosis of chronic appendicitis with possible adhesions from the previous operation.

Operation by suprapubic midline incision was performed. The appendix, which was bound down with adhesions, was removed. Several little strings of adhesions of fibrous bands about the size of a knitting needle, extending from the parietal peritoneum to different parts of the small intestine, were released. A Lane kink was also released. Careful search of the intestine for the previous perforation was made, but the intestine appeared to be perfectly normal, and the location of the former perforation could not be found. The wound was closed in the usual manner without drainage. A small cyst the size of a guinea egg was removed from the upper and outer quadrant of the left breast.

The postoperative diagnosis was subacute appendicitis, with a few adhesions resulting from the previous operation, and a mammary cyst. Microscopic examination of this cyst revealed that it was a retention cyst of the breast. Seventeen days after admission the patient was dismissed in good condition.

Third Operation.—Oct. 26, 1919, six months after the second operation, and one year and one month after the first perforation was closed, the patient was readmitted to the hospital. The chief complaint was severe abdominal pain which began that morning, with sudden pain in the lower abdomen, nausea, vomiting, prostration and abdominal distention. On admission, the temperature was 98.4, pulse 100, respirations 30. The blood count was: leukocytes, 21,000; polymorphonuclears, 89 per cent.. The urine was straw colored, cloudy and acid; the specific gravity was 1.017; there was a trace of albumin; sugar was negative; there were from 18 to 20 pus cells in the field; blood was negative; there were a few bacteria. The preoperative diagnosis was perforation of the small intestine. The patient was operated on a few hours after admission, which was about twelve hours after the beginning of this attack. It was later elicited that about two weeks prior to this attack, the patient had had furuncles in the external auditory canal.

Operation by right rectus incision was performed. When the peritoneal cavity was opened, dense adhesions were found. The small intestine bulged into the wound, and immediately a loop with a perforation appeared. This hole was the size of a pea, with a large indurated area around it the size of a dollar. The intestine was resected well beyond the indurated area. Lateral anastomosis was made, and a split rubber drain passed into Douglas' culdesac. The patient left the operating table in good condition. The drain was removed in three days. The temperature was practically normal at the end of a week, and the patient left the hospital in good condition seven weeks after admission.

The pathologic report was: Piece of intestine resected; tissue from ulcer of intestine, simple inflammatory; small round type of cell predominating; no malignancy.

The blood Wassermann reaction, the Widal test for typhoid, Dryer's test for typhoid, blood culture for typhoid and the tuberculin test were negative.

Fourth Operation.—Jan. 17, 1921, about one year and three months after her last admission and about two years and four months after the first perforation was closed, the patient was readmitted to the hospital. About two weeks prior to admission, she had two or three furuncles in the external auditory canal. About the time this furunculosis was subsiding, she began to have more or less discomfort and abdominal pain with some distention. She came to the hos-

pital for observation and roentgen-ray examination. Physical examination was negative except that there were indefinite soreness and tenderness in the abdomen, slight distention and no rigidity. Blood examination on the morning of the 17th revealed: hemoglobin, 75 per cent.; leukocytes, 7,800; polymorphonuclears, 60 per cent.

The day following admission, roentgen-ray examination was made of the teeth, chest and abdomen. There was a slight area of infection around the roots of the upper right first bicuspid, but none of the other teeth showed any definite areas of infection around the roots. Chest examination was negative. There was no evidence of any lesion of the small or large intestine. The patient was allowed a light lunch. Soon after this she suddenly developed acute pain in the abdomen, nausea and vomiting, distention and marked muscular rigidity. Diagnosis of perforation of the small intestine was made a few hours later. Blood examination shortly after she complained of the first violent abdominal pain revealed: leukocytes, 12,400; polymorphonuclears, 80 per cent. Three hours later another blood count revealed: leukocytes, 12,600; polymorphonclears, 88 per cent.. The urine was negative except for a faint trace of albumin. The blood Wassermann reaction was negative.

Operation by right rectus incision was performed. When the peritoneal cavity was opened, dense adhesions were found as a result of the former operations. The site of the former anastomosis was found. Two perforations were present just outside the previous line of anastomosis. Considerable barium was free in the peritoneal cavity and running freely out of the perforations. This old anastomosis was resected, and another lateral anastomosis was made. Some adhesions were released. The rectus muscles had separated, and no attempt was made to bring them together. A rubber drainage tube with a gauze wick was inserted at the lower angle of the wound. The postoperative diagnosis was: perforation of the intestine, which was the third one within the last three years; the cause of perforation not determined. The patient made rapid and uninterrupted recovery, and left the hospital in nineteen days.

A specimen of the intestine submitted to Dr. A. C. Broders for pathologic study gave no evidence of tuberculosis, malignancy or *Endameba histolytica*. It appeared to be a simple inflammatory ulcer. Dr. Broders believed the condition a straight-out inflammatory process due to a focus of infection.

Two weeks later I accompanied the patient to the Mayo Clinic for observation and advice in order that we might prevent, if possible, any future perforations. She was carefully studied there for about two weeks. Tests for tuberculosis, malignancy, amebas, infective foci and other pathologic conditions were made. Roentgen examination revealed root abscesses of two teeth. These teeth were removed. Otherwise the examinations were negative except that she had a slight ventral hernia resulting from drainage and many operations.

COMMENT

The interesting feature of this case is the cause of the repeated perforations. The family history and previous history of the patient were negative. She had never had any illness of any consequence prior to the first perforation in 1918. Careful and repeated examinations for tuberculosis, syphilis, endamebas and typhoid fever were all negative. It is interesting that from one to two weeks prior to each perforation she had furunculosis of the external auditory canal; that the pathologic reports of the sections of the resected intestine showed it to be inflammatory; that she had root abscesses of two teeth at the time of her examination at the Mayo Clinic, and that she had an infection around the roots of the upper right first bicuspid when a roentgenogram was made on the day of the last perforation.

We can say definitely that these perforations are inflammatory in character and result from a focus of infection somewhere. The two foci of infection that were known to exist were the furuncles of the external auditory canal and the abscessed teeth. I myself am inclined to think that the perforations resulted from the furunculosis. The consensus at the Mayo Clinic was that in all probability the infection came from the teeth.

Phemister[1] says that skin foci are important as a source of hematogenous staphylococcus lesions, and reports nineteen cases, briefly summarized and grouped according to the structures involved, which he has observed, with two exceptions, in connection with various services of the Presbyterian Hospital in the twenty months previous to September, 1921. In all instances the staphylococcus, usually *Staphylococcus aureus*, but the variety was not always stated, was the only organism in cultures from the pus obtained at operation. In a few cases it was obtained in cultures from the skin focus, but usually the skin lesion was healed before the patient entered the hospital. The only definite focus of infection for entrance of the organism was in the skin, and there was no history of a recent focus in another region, except in one case.

It seems, therefore, these nineteen cases of blood-borne infection, reported by Phemister, directly traceable to primary skin infections, lend weight to the very strong probability that the primary focus in the case herein reported was due to an infection transmitted through the blood stream from the furuncles in the external auditory canal.

ACUTE DELIRIUM APPARENTLY DUE TO BROMIDIA POISONING

A. E. BENNETT, M.D., PHILADELPHIA

History.—Mrs. R. B., aged 32, white, actress, admitted to the service of Dr. M. H. Bochroch in the psychopathic wards of the Philadelphia General Hospital, June 5, 1922, was unconscious, May 30, when her husband arrived home in the evening. In about ten minutes she revived, and talked rationally. That night she became delirious and talked at random, but had no fever. The next day she imagined that she was receiving electric shocks; she heard voices saying bad things about her, and thought that people were persecuting her father, and also trying to kill her with radio. No visual hallucinations were present. The history was unimportant until December, 1920, when the patient developed a pelvic inflammatory condition. At this time a physician prescribed Bromidia for insomnia. The patient took from one-half to 1 ounce daily of her own accord for nervousness, sleeplessness and pain for eighteen months.

On admission, the patient's mental status was that of a delirious reaction. She was confused, disoriented as to time, showed a memory loss for recent events, and her attention could not be fixed. In addition, many schizophrenic phenomena were present; she answered voices, and felt that people spoke about her, calling her bad names. She also spoke of radio causing her to receive electric shocks, and felt that people were trying to kill her father and brother.

Examination.—A complete physical and neurologic examination revealed nothing abnormal except moderate emaciation and pupils sluggish to light and slightly irregular.

Complete laboratory examinations were made. Repeated urinary examinations were negative. The blood picture was that of a moderate secondary anemia, with normal leukocyte and differential count. Blood and spinal fluid Wassermann tests were negative, as were cell counts, and globulin and colloidal gold tests.

Treatment and Course.—The patient was put on a forced high caloric diet with forced liquids. Hydrotherapy, in the form of continuous baths morning and afternoon, was given to allay excitement. Alkaline diuretics were given, and sodium cacodylate intramuscularly, along with ferrous carbonate after meals. The patient was afebrile during her entire stay of four weeks in the hospital. In about ten days her hallucinations disappeared; at times she would be rational, and at other times confused. By July 26, she had improved remarkably; the sensorium was entirely clear, and she showed excellent insight.

During her convalescence, the patient stated that her trouble began with constantly hearing voices; next her surroundings appeared of various colors. She felt as though some one was playing violet rays on her; at times she saw

1. Phemister, D. B.: Hematogenous Staphylococcus Infections Secondary to Foci in the Skin, J. A. M. A. 78:480 (Feb. 18) 1922.

flashing lights before her eyes. At other times she felt that she was receiving electric shocks and that people were persecuting her father and brother. She stated that the voices stopped first after her admission; at times things would seem normal, then again confused.

Telling of taking Bromidia, she stated that it never was a habit. One teaspoonful made her drowsy, 2 teaspoonfuls wakened her, and a larger dose was required for sleep. First she felt depressed and then exhilarated, forgetting her pain and feeling happy.

The patient's weight on admission was 90 pounds (41 kg.); when discharged, 95 pounds (43 kg.). When seen two weeks later in the neuropsychiatric clinic, she felt and appeared perfectly well, and weighed 110 pounds (50 kg.).

COMMENT

The interest in the case lies in the facts that:

1. It represents a case of delirious reaction, due to taking large doses of the proprietary preparation Bromidia, over a period of eighteen months.

2. Difficulty in diagnosis might have arisen without the history, since the case presented many schizophrenic phenomena, and it illustrates how an incorrect diagnosis of dementia praecox may be made.

3. The preparation Bromidia was passed on unfavorably by the Council on Pharmacy and Chemistry,[1] and three deaths were reported due to poisoning. "S. Q. Lapius,"[2] in 1918, again pointed out the dangers of its indiscriminate use.

Philadelphia General Hospital.

TWO CASES OF FOREIGN BODY IN LEFT BRONCHUS REMOVED ENDOSCOPICALLY

M. R. WALTZ, PH.B., B.S., M.D., FORT SMITH, ARK.

Removal of foreign bodies by the endoscopic method is relatively common, but reports of these cases have not entirely lost interest. The cases reported here are of slightly added interest because of the location of the foreign bodies in the left bronchus and not in the right, as we usually expect them to be because of the anatomic configuration of the bronchi; also these cases happened to be consecutive.

CASE 1.—A school girl, aged 7, was playing with some brown beans seven days before I saw her. She had one in her mouth when her cousin suddenly tickled her by "grabbing her ribs," causing her to inhale forcibly, drawing the bean down. She coughed considerably, her respirations had been rapid since then, and she complained of pain in the left side of the chest, and fever. The previous history was generally negative. On examination the temperature was 100, pulse 114 and respirations 50. The examination was generally negative except for chest findings. The left chest expanded only slightly on inspiration, and seemed to be fixed. Percussion was dull over the whole left side, and resonant over the right. No breath sounds were heard on the left side; a few râles on inspiration were heard on the right.

Fluoroscopic examination revealed a small irregular shadow in the left descending bronchus. This was not very plain, but seemed to be a foreign body. No air entered the left lung on forced inspiration. The diaphragm did not move on deep breathing.

The bronchoscopic examination was made under general anesthesia because we could not control the child under local. By means of an Ingals laryngeal spatula, a 7 mm. Jackson bronchoscope was passed into the trachea and down to the bifurcation. The right bronchus was examined, with negative findings. In the left bronchus, the mucosa was considerably swollen, and no divisions of the main bronchus could be made out, but apparently it ended in a blind pocket about half an inch to an inch from the trachea. Fibrin covered the walls. Inferiorly there was a resisting, rounded white mass which could not be grasped with Bruening forceps. After considerable work and time, a piece of it was withdrawn with the bronchoscope and forceps, which proved to be about one half the valve of a bean without the hull. The bronchoscope was introduced again and another attempt made to grasp the bean. This time the forceps caught the hull, and hull and bean were removed with the bronchoscope and forceps. Breath sounds were immediately heard over the whole lung.

Following the removal, considerable laryngeal dyspnea was encountered owing to swelling, but this was kept under control with an epinephrin spray. The lung findings gradually cleared up, and the child went home on the seventh day.

CASE 2.—A baby, aged 9 months, crawled to the back kitchen steps, six days before, and was seized with a sudden violent coughing spell, which lasted for several minutes. The mother stated that some watermelon seeds had been swept out the door, but none could then be seen. The baby had two more attacks of coughing that day and several the next. On the fourth day, a chest examination revealed many coarse moist râles in both lungs, more in the lower lobes and left side. Roentgenograms and fluoroscopic examination revealed nothing. The baby was allowed to go home to await developments, as no definite diagnosis was possible at that time. Three days later the baby was brought back with the history that the coughing attacks had increased in frequency to about every thirty or sixty minutes. The findings on chest examination were about the same as before, with the addition that a sound, as though air were going through a narrow opening, was now heard over the left hilum. At this time the count of white blood corpuscles was 24,000, with a normal differential, and the temperature was 99.6 F. The child was referred to me for bronchoscopic examination.

After cocainization of the pharynx and larynx with an application of 20 per cent. cocain, by means of a small laryngeal spatula, a 4 mm. Jackson bronchoscope was passed into the trachea. The right bronchus was normal in appearance. In the left bronchus, the mucosa was inflamed and slightly edematous. Just visible in the descending portion of the left bronchus was the germinal end of a watermelon seed. With Bruening forceps the seed was grasped, and the bronchoscope, forceps and seed were removed together. The time was from two to five minutes.

The baby was slightly cyanotic for a few minutes afterward, but soon regained a healthy color, and was taken home the next morning.

Cooper Clinic.

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1. Bromidia, J. A. M. A. **72**: 1573 (May 16) 1914.
2. Shotgun Nostrums, J. A. M. A. **70**: 642 (March 2) 1918.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PYRAMIDON (See New and Nonofficial Remedies, 1922, p. 251).

The following dosage form has been accepted:

Pyramidon Tablets, 5 grains.

NOVOCAIN (See New and Nonofficial Remedies, 1922, p. 36).

The following dosage forms have been accepted:

Novocain and I-Suprarenin Tablets "H": Each contains novocain, 0.06 Gm. (1 grain), and l-suprarenin synthetic, 0.00006 Gm. (1/1,000 grain).

Novocain Solution 1 Per Cent. Ampules: Each contains novocain, 0.06 Gm. (1 grain), sodium chloride, 0.036 Gm. (½ grain), and distilled water, 6 Cc. (90 minims).

RADIUM CHLORIDE-United States Radium Corporation (formerly, Radio Chemical Corp.; see New and Nonofficial Remedies, 1922, page 261).

The following dosage forms have been accepted:

Ampules Radium Chloride, 2 Cc.-United States Radium Corp. (radium element, 5 micrograms).

Ampules Radium Chloride 2 Cc.-United States Radium Corp. (radium element, 10 micrograms).

Ampules Radium Chloride, 2 Cc.-United States Radium Corp. (radium element, 25 micrograms).

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SATURDAY, SEPTEMBER 23, 1922

INORGANIC NUTRIENTS AND EYE DISEASE

The reference of specific pathologic lesions to the invasion of harmful micro-organisms into the body has become so common in these days of modern bacteriology that other pathogenic factors in disease are sometimes likely to be overlooked and often to be undervalued. The comparatively recent history of the few so-called deficiency diseases illustrates the struggle of investigators to exclude bacteria as the primary etiologic agents in such conditions as scurvy, rickets and beriberi. The scientific debate may still be followed today in the case of pellagra, for which several views are still being championed by students whose reputation entitles them to an unprejudiced hearing. The idea that a dietary deficiency of vitamins may bring about disorders in the body has rapidly won adherents, and may fairly be regarded as a permanent gain to the theory and practice of medicine.

So little attention is ordinarily paid to the inorganic ingredients of our food that the conception of upsets in the mineral metabolism with consequent localized defects is not so easily appreciated. McCollum, Simmonds and Becker [1] of the Johns Hopkins University have recently discovered that certain species of animals which are growing fairly rapidly and present a moderately well nourished appearance may nevertheless develop a type of ophthalmia that is amenable to treatment by suitable changes in the diet. This newly recognized form of "sore eyes" is not identical with the xerophthalmia now generally believed to be associated with a deficiency of vitamin A in the diet, for it is not curable by administration of the latter. The Johns Hopkins experimenters who have discovered the second type of ophthalmia believe it to be caused in rats by an unfavorable relationship between certain inorganic elements in the food of the animals.

In its general manifestations this eye malady is indistinguishable from the ophthalmia due to lack of vitamin A. The one constant dietary factor which operated in the experiments under discussion was a high content of chlorin. McCollum and his associates regard it as possible, however, that a high sodium content in the diet may contribute to cause the pathologic condition. They admit, further, that perhaps the provision of excessive amounts of certain other inorganic elements may intensify the effect of chlorin or sodium or both in hastening the onset of the eye disease.

Obviously, it will not be permissible to apply these experimental findings without clinical study of human disease. It is now well known that certain species may be peculiarly susceptible to particular deficiencies. As Mitchell [2] has pointed out in reference to vitamin studies, experiments are performed on animals chosen particularly because they are known to be readily susceptible to a deficiency of this or that vitamin. One is therefore by no means always justified in transferring to man the conclusions arrived at through such animal tests. Nevertheless, the demonstration of a biologic interrelation of salt effects in mammalian nutrition is of itself of sufficient significance to direct the attention of investigators of human disease to its possibilities for man.

A SPECIFIC ANTIRACHITIC VITAMIN

Thanks to the active interest of a number of investigators both in this country and abroad, the study of rickets has made noteworthy progress within the last five years. It has long been appreciated that unless lime is available, bones cannot manifest a normal growth and development; but the more recent researches have emphasized that the dietary supply of calcium is only one of the factors that play a physiologic part in the deposition of this element in the osseous tissues. Phosphorus must likewise be available; but besides this and the possible disturbances in the balance of the inorganic elements in the diet whereby their relative proportions become unsuitable for the nutritive functions, there are still further influences that may affect the well-being of the bones. The history, both clinical and experimental, of the use of cod liver oil in connection with skeletal development attests the indisputable value of certain naturally occurring fats in this respect; and the trend of scientific studies of the past decade has been to implicate vitamin-like substances in the beneficial reactions.

The fundamental facts which have led to the conclusion that some as yet unidentified dietary component, tentatively designated as vitamin A, or fat-soluble A, is essential to the organism during the period of growth at least, have often been rehearsed in THE JOURNAL.[3] Vitamin A is present, as might be expected, in milk and eggs, which represent the food of early growth. Aside from failure to make adequate gains of weight,

1. McCollum, E. N.; Simmonds, Nina, and Becker, J. E.: On a Type of Ophthalmia Caused by Unsatisfactory Relations in the Inorganic Portion of the Diet: An Ophthalmia Not Due to Starvation for Fat-Soluble A, and Not Curable by Its Administration, J. Biol. Chem. **53**: 313 (Aug.) 1922.

2. Mitchell, H. H.: The Necessity of Balancing Dietaries with Respect to Vitamines, Science **56**: 34 (July 14) 1922.

3. Some Properties of the Fat-Soluble Vitamin (Fat-Soluble A), editorial, J. A. M. A. **73**: 1066 (Oct. 4) 1919; The Nature of the Fat-Soluble Vitamin, ibid. **75**: 544 (Aug. 21) 1920; The Loss of Anti-scorbutic Potency of Foods, ibid. **76**: 1577 (June 4) 1921; Vitamin A and Rickets, ibid. **77**: 383 (July 30) 1921; The Origin of "Vitamin A," ibid. **78**: 352 (Feb. 4) 1922.

the lack of vitamin A is known to manifest itself specifically, in certain species at least, by a variety of abnormalities of the eyes commonly termed xerophthalmia.[4] Pure cod liver oil is rich in something which prevents or cures such ophthalmias;[5] and it is notably efficient as an antirachitic agent. Consequently, there has been a temptation, though by no means a logical necessity, to conclude that the same dietary factor, vitamin A, is responsible for both the antixerophthalmic and the antirachitic potency of cod liver oil.

If this deduction were valid, all those food products which are rich in vitamin A should promote the cure of rickets when all the other dietary factors are made adequate. Recent experiments, however, have raised serious doubt as to the identity of vitamin A with the antirachitic factor. Thus, McCollum and his associates[6] have concluded that cod liver oil contains in abundance some substance which is present in butter fat in only very slight amounts, and which exerts a directive influence on bone development, enabling animals to develop with an inadequate supply of calcium much better than they could otherwise do. They add that this substance is apparently distinct from fat-soluble A, which is essential for growth and which is associated definitely, as already stated, with the prevention of ophthalmia.

In harmony with this is the more recent demonstration that coconut oil, for example, which does not contain this vitamin A, furnishes something which increases the efficiency of animals to utilize a low supply of calcium, although it will neither prevent nor cure xerophthalmia. Furthermore, the fat-soluble A can be completely destroyed in cod liver oil by oxidation without loss of the substance which plays such an important part in bone growth.[7] Cod liver oil must therefore be assumed to contain at least two distinct nutritive properties aside from its value as a fat having a high degree of digestibility.[8] The Baltimore investigators are convinced that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from vitamin A. In other words, we are told that the now available facts demonstrate the existence of a fourth vitamin (in addition to the already familiar A, B and C factors) whose specific property, so far as can at present be conjectured, is to regulate the metabolism of the bones. Let us hasten to add that cod liver oil is not the exclusive source of antirachitic potencies.

4. Mori, Shinnosuke: The Primary Changes in the Eyes of Rats Which Result from Deficiency of Fat-Soluble A in the Diet, J. A. M. A. **79**: 197 (July 15) 1922.

5. Osborne, T. B., and Mendel, L. B.: The Influence of Cod Liver Oil and Some Other Fats on Growth, J. Biol. Chem. **17**: 401, 1917.

6. McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets. XII. Is There a Substance Other than Fat-Soluble A Associated with Certain Fats Which Plays an Important Rôle in Bone Development? J. Biol. Chem. **50**: 5 (Jan.) 1922.

7. McCollum, E. V.; Simmonds, Nina; Becker, J. E., and Shipley, P. G.: Studies on Experimental Rickets. XXI. An Experimental Demonstration of the Existence of a Vitamin Which Promotes Calcium Deposition, J. Biol. Chem. **53**: 293 (Aug.) 1922.

8. Devel, H. J. Jr., and Helmes, A. D.: Digestibility of Cod Liver, Java-Almond, Tea-Seed, and Watermelon-Seed Oils, Deer Fat, and Some Blended Hydrogenated Oils, Bull. 1033, U. S. Dept. Agric., July 27, 1922.

THE WASSERMANN AND PRECIPITATION TESTS

Although numerous modifications of the Wassermann test have been proposed, an efficient simplification is still wanting. The entanglement of amboceptor, complement, antigen, serum and cells constitutes a Gordian knot which biochemists and serologists have failed to unravel in sixteen years. Pipetting, diluting, titrating and injecting are tedious, technical procedures. Ice-boxes, centrifuges, incubators, shaking machines and animals are expensive and cumbersome equipment. Nevertheless, complexities and encumbrances have failed to obscure the value of the test, and have charmed rather than discouraged investigators. Recently, after years of study on standardization, Kolmer[1] adopted a complement-fixation technic less simple than the methods in use heretofore. His primary incubation period is from fifteen to eighteen hours. The antigen is a cholesterolized and lecithinized alcoholic extract of the dried powder of several heart muscles. The test unit of antigen is ten antigenic units, and this amount is at least twenty times less than the anticomplementary and hemolytic units. Schamberg and Klauder,[2] in a series of 2,000 tests, found the Kolmer technic distinctly more sensitive than the older methods. They observed no false positive reactions. Shivers,[3] in a series of 320 tests, likewise found it more sensitive and reliable, and states that it gives positive reactions earlier in primary syphilis, and is much slower in becoming negative when the patient is under treatment. It would seem that Kolmer has succeeded, at the expense of simplicity, in increasing the efficiency of the complement-fixation test, although it is a disappointment to learn that simplification of the test was apparently impossible. If generally adopted, Kolmer's technic will commit the serologic diagnosis of syphilis definitely to the trained worker and the highest type of laboratory. The Wassermann test will be, as it is to some extent now, a full-time job. Whatever happens, it will not be discarded until an equally dependable but simpler test has been introduced.

The time, labor and expense involved in the complement-fixation test has led to the proposal of various other tests for the diagnosis of syphilis. Meinicke, in 1917, and Sachs and Georgi, in 1918, introduced procedures which employ only serum and antigen. In these tests the end-result with a positive serum is a precipitate. Their difficulty is a forty-eight hour incubation period, during which the serum frequently becomes contaminated, and thus leads to false interpretations. Wang[4] also proposed recently a precipitation test. His antigen shows a slight turbidity on dilution with

1. Kolmer, J. A.: A New Complement-Fixation Test for Syphilis Based upon the Results of Studies in the Standardization of Technic, Am. J. Syph. **6**: 1 (Jan.) 1922.

2. Schamberg, J. F., and Klauder, J. V.: M. Clin. N. Am. **5**: 667 (Nov.) 1921.

3. Shivers, C. H.: The Clinical Value of the Kolmer Complement-Fixation Test for Syphilis, Arch. Dermat. & Syph. **6**: 344 (Sept.) 1922.

4. Wang, C. Y.: A Precipitation Test for Syphilis, Lancet **1**: 2 (Feb. 11) 1922.

physiologic sodium chlorid solution, and thus renders doubtful the interpretation of weak reactions. Still more recently, Kahn [5] introduced a precipitation test which is relatively free from the foregoing objections. A definite precipitate appears in Kahn's test within five minutes in nearly 80 per cent. of serums giving a four plus reaction with the Wassermann test. While this is a distinct advantage, the final readings, especially of the weaker serums, are not made until the following morning. Kahn claims that his method is more sensitive than the Wassermann test in hereditary syphilis and in treated cases of this disease. Keim and Wile,[6] in a series of 350 unselected cases in which the Wassermann and Kahn tests were made side by side, found that the latter compared favorably in sensitiveness with the Wassermann test. Finally, Herrold [7] has proposed a simple modification of the Kahn test in which a contact precipitation, or ring, appears at the juncture of serum and antigen. The final reading is taken after one hour. In a comparative test with 244 serums, the complement-fixation, the Kahn, and the ring precipitation tests agreed in 95.5 per cent. of the serums. The final determination of the value of the precipitation tests can be made only after a large number of trials, especially with doubtful serums, but it appears that the serologic diagnosis of syphilis has been simplified as well as sensitized.

Current Comment

COLLECTION AGENCIES

Some weeks ago THE JOURNAL published in the Propaganda Department two short articles, each dealing with a collection agency about which complaints from physicians had been received. These articles, apparently, stimulated many physicians who had had unpleasant experiences with these and other collection agencies to write to THE JOURNAL. From these reports it seems there are two tricks practiced by certain agencies that are especially exasperating. The first is that of incorporating in a long and verbose contract a clause, easily overlooked by the physician, to the effect that, should the physician wish to withdraw any of the accounts he has turned over to the agency, he must pay the agency the full commission on each account. Letter after letter has come in, from physicians who have signed such contracts, complaining that their delinquent patients have been bombarded with crude form letters which have simply aroused ill feeling to the point where the physician would rather cancel the debt than continue "dunning." He finds, however, that he cannot do so without paying to the collection agency an amount in cash equal to the commission this agency would have received had it enforced payment in full of the account. Another scheme that is much resented by physicians is that of obtaining accounts under false representations. A representative of a collection agency comes into town and assures the physician that his company does *personal* collecting and states, or leads the physician to infer, that the entire business of collecting the old accounts will be done by a representative of the agency through personal solicitation. After the accounts have been turned over the physician finds, to his cost, that the concern employs the usual series of stock dunning letters, most of them of such a character as to arouse resentment in the debtor rather than cause him to settle his account. There is no recourse, however, because the misrepresentation has been verbal, usually without witnesses, and the contract which the physician signs contains nothing to indicate how collections will be made. But all the fault is not on the side of tricky collection agencies. Too many physicians sign contracts with these concerns without giving due thought and study to the contract. It is not a bad plan when these gentry come around to tell them to leave a copy of their printed contract for twenty-four hours so that it may be studied and then come back for a decision. Meanwhile the physician may consider whether or not, in the long run, he will not do as well by employing a local concern.

THE DYNAMOMETER IN MEDICINE

To any one who considers the important part played by muscular efficiency in human welfare, the desirability of having some reliable objective method of evaluating the working power of the contractile tissues must be obvious. Those who recall the introduction of the human ergograph by the Italian physiologist Mosso nearly forty years ago will doubtless confess a disappointment in the outcome of studies with this ingenious device. Aside from a few physiologic investigations indicating the influence of special environmental factors on the power of certain muscles, little has been contributed by its employment to our knowledge of muscular function. The dynamometer also has had a relatively long history of application, primarily by physical trainers who were interested in securing some sort of measure of the success of their efforts. "Strength tests" failed to excite any serious clinical interest, although they have found a place in the technic of gymnastic training. The need of a reliable criterion of the degree of muscular impairment in surviving sufferers from infantile paralysis led Martin [1] to devise a dynamometer of a modified type in which the part played by the person is to resist a pull rather than to exert his strength in an active effort. The test therefore measures the maximum resistance which the contracted muscles offer against stretching. Furthermore, it is made applicable to numerous muscle groups in various parts of the body. With this device, Lovett and Martin [2] have been able to ascertain the

5. Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph., May, June and September, 1922.
6. Keim, H. L., and Wile, U. J.: The Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. 79:870 (Sept. 9) 1922.
7. Herrold, R. D.: A Ring or Contact Precipitation Test for Syphilis, J. A. M. A. 79:957 (Sept. 16) 1922.

1. Martin, E. G.: Pub. Health Rep. 35:1895 (Aug. 13) 1920.
2. Lovett, R. W., and Martin, E. G.: Certain Aspects of Infantile Paralysis, with a Description of a Method of Muscle Testing, J. A. M. A. 46:729 (March 4) 1916.

progress of affected muscles in infantile paralysis, either in the direction of improvement within the limits set by the disease, or as further impairment due to unfavorable conditions. It is not unlikely that dynamometry with such improved apparatus will find industrial applications, particularly in the physical classification of employees.[1] The war has emphasized the importance of considering industrial fatigue; and Martin has suggested that a classification of workers in accordance with their strength may prove to be extremely useful. He[3] has more recently proposed a greater use of the resistance strength test in medicine in connection with the diagnosis and treatment of "effort syndrome," in the management of which the method has already been applied with apparent advantage;[4] and Smith has pointed out the possible value of well-graded, properly supervised exercise in the later treatment of infectious diseases. If controlled exercise is to play a larger part in therapy, it is increasingly evident that more attention must be paid to the dynamometer or some other instrument for measuring results without mere reliance on the momentary "feelings" or impressions of patients.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Edward S. Sledge, Mobile, will succeed Dr. W. R. Jackson, deceased, as a member of the state board of censors, the state board of health, and the state board of medical examiners.——Dr. Wilder D. Hubbard, Florence, has been appointed health officer of Lauderdale County.

Health Conference.—A conference of health officers and nurses was called, September 11-12, in Birmingham, by Dr. S. W. Welch, state health officer. Prof. E. V. McCollum, professor of chemical hygiene and public health at Johns Hopkins University, Baltimore, gave lectures on nutrition and school hygiene at the meeting.

ARIZONA

Health Exhibit at State Fair.—The state board of health has arranged to have a health exhibit at the state fair in Phoenix, which will include all departments of health work being done by the board. Prizes will be awarded for the best original health posters by Arizona schoolchildren, and the prize winning posters exhibited. The first prize will be $20, the second $10 and the third $5.

Better Babies Contest.—During the state fair at Phoenix, October 30 to November 4, a better babies contest will be held for children under 3 years of age. The number of entries is limited to 200. Gold and silver medals will be awarded to the prize winning babies. Children are scored and judged solely on their physical and mental perfection, according to the rules and standards of the American Medical Association.

CALIFORNIA

Chiropractor Fined.—It is reported that Walter B. Sessions, chiropractor of Fullerton, was recently fined $250 for practicing a method of healing without having obtained a license from the state board of medical examiners.

3. Martin, E. G.: Tests of Muscular Efficiency, Physiol. Rev. **1**: 454 (July) 1921.

4. Smith, Bertnard: The Possibilities of Physical Development in Cases of Effort Syndrome by Means of Graded Exercises, Arch. Int. Med. **24**: 321 (Sept.) 1919.

State Society in New Offices.—Following notification that the rent of the offices of the Medical Society of the State of California in the Butler Building, San Francisco, would be materially increased, the society decided to move. Suitable offices have been taken in the Balboa Building, near the Palace Hotel. The League for the Conservation of Public Health has also moved to the Balboa Building for the same reason. The *California State Journal of Medicine* is the official publication of the state medical society.

Hospital News.—A new fifty-five bed addition has been completed at the Seaside Hospital, Long Beach. This addition includes four operating rooms, two sterilizing rooms, one nurses' work room, one anesthetizing room, as well as physicians' rest room, complete pathologic laboratories, diet kitchens and diet laboratory.——Dr. Adelbert C. Matthews, superintendent of the Napa State Hospital, Imola, will make a tour of inspection of hospitals in Chicago, Cleveland, Toledo, New York and Boston, among other places, for the purpose of studying their methods.——The Taft General Hospital at Taft was burned to the ground, September 7. All the patients were saved and were taken to private homes near the hospital.——It is expected that the San Fernando Hospital will be ready for occupancy, October 1.

COLORADO

State Medical Meeting.—The annual meeting of the Colorado State Medical Society will be held in Colorado Springs, October 3-5, under the presidency of Dr. Harry A. Smith, Delta.

Hospital Merger.—The University and Boulder hospitals have merged, it was recently announced. Control of the merged institutions will be vested in a chamber of commerce board. Under this plan the community shall maintain the University Hospital until Aug. 1, 1924. New equipment for the operating room at the University Hospital, purchased at a cost of $1,500 by the women's advisory board, will be installed at once.

New Medical School.—Plans for the psychopathic ward of the new state hospital and medical school are said to have been approved by the dean, Dr. Charles N. Meader, and a committee of neurologists. The Denver city council appropriated $20,000 in May as that city's contribution to the University of Colorado Medical School and State Hospital, which was made possible by donations from the Rockefeller and Carnegie foundations.

Jubilee Volume for Semicentenary of Medical Society.—A handsome volume, in celebration of the semicentennial anniversary of the Colorado State Medical Society, will be issued shortly. The frontispiece will be a portrait of Dr. Edwin James, the first medical man to distinguish himself in Colorado. He accompanied the Long Expedition of 1819-1820, and was the first white man to ascend Pikes Peak. His name was given to the peak in Gilpin County under which it is proposed to drive the Moffat tunnel. This volume will contain a history of medicine in Colorado, portraits of the deceased presidents of the Colorado State Medical Society, a list of medical journals published in that state, etc. The price to all who have not contributed to the publication fund is $5.

GEORGIA

New Feature for Schools.—Inauguration of a dental clinic in the Atlanta public schools was coincident with the opening, September 11, under the direction of Dr. John P. Kennedy, city health officer, and the school superintendent. Portable dental chairs are used, days being set aside for examination of teeth of the children in the respective schools. Recommendations are to be made to the family dentist as to any defects in the teeth of children, and if the parents are financially unable to pay, the work will be performed free by the school dentist.

ILLINOIS

Publisher's Bequest to Hospital.—Under the will of Delavan Smith, publisher of the *Indianapolis News*, $100,000 is bequeathed to the Lake Forest Hospital, Lake Forest, for the erection of a permanent general hospital building.

Medical Meeting.—Physicians from Stephenson, Carroll, Boone, LaSalle, McHenry, DeKalb, Jo Daviess, Ogle, Lee and Whiteside counties in Illinois and Rock County in Wisconsin attended the convention of the First District Illinois State Medical Society at Rockford, August 23. A trip was made up Rock River to Illinois Park by steamer. Dr. Dean Lewis, Chicago, was the principal speaker at the meeting.

Personal.—Dr. Axel F. Benson, Galva, has resigned as coroner of Henry County and will reside at Austin in future. Dr. Benson was formerly a minister.——Dr. William H. Lyford, Port Byron, celebrated his eighty-sixth birthday, September 8.——Dr. George W. Michell has resigned as president of the board of school inspectors of Peoria, after ten consecutive years and four terms as president.——Dr. James M. Masters has resigned as superintendent of Oak Knoll Sanatorium, Mackinaw, and will reopen his sanatorium at Port Orange, Fla. Dr. John F. W. Rost of Minier is acting as medical director of Oak Knoll Sanatorium until other arrangements are made.

Tri-State Meeting.—The annual meeting of the Tri-State Medical Association will be held in Peoria, October 30 and 31, and November 1 and 2. Calvin Coolidge, vice president of the United States, it is stated, will address the members of the association at the banquet, November 2. Among the physicians who are scheduled to address the meeting are: Prof. Theodore Tuffier, Paris; Dr. Andrew Fulleron, Belfast; Dr. Einar Key of Maria Hospital, Stockholm; Dr. Alexander Primrose, dean of the University of Toronto; Dr. William Mayo, Rochester, Minn.; Dr. William Seaman Bainbridge, New York; Dr. Frank Billings, Dr. Alfred N. Murray and Dr. Edward H. Ochsner, Chicago; Dr. Francis G. Blake, New Haven, Conn.; Dr. Walter W. Chipman, Montreal; Dr. George W. Crile, Cleveland; Dr. John B. Deaver, Philadelphia, and Dr. John M. T. Finney, Baltimore. A joint meeting of the medical women of Wisconsin, Illinois and Iowa will be held at Peoria at the same time as the Tri-State Meeting. The annual election of officers of the Wisconsin society, of which Dr. Edith McCann, Milwaukee, is president, will take place immediately preceding the general meeting.

Chicago

Chicago Medical Society.—A dinner-dance will be given at the Morrison Hotel, October 11, in honor of Dr. John S. Nagel, retiring president of the Chicago Medical Society. Tickets can be obtained from the secretaries of the branch societies, at $2.50 per plate.

Physicians Decorated.—Dr. Camillo Volini and Dr. Antonio Lagorio, both of Chicago, have received the Order of the Grand Knight from the king of Italy, for their services to humanity. Dr. Volini is director of the Italian Red Cross in the United States, and Dr. Lagorio is head of the Pasteur Institute, Chicago.

Personal.—William F. G. Swan, Sc.D., professor of physics at the University of Minnesota, has been appointed professor of physics at the University of Chicago. Professor Swan was connected with the Royal College of Science, London, and the University of Sheffield, before coming to the United States in 1913.——Dr. Edmund J. Doering of Chicago has been promoted to the rank of colonel, M. O. R. C., by President Harding. Dr. Doering passed the Army Examining Board in August.——Passed Asst.-Surg. Harris E. Powers, U. S. Public Health Service, Louisville, Ky., has been appointed to the U. S. Veterans' Bureau Hospital, No. 30, at Chicago. ——Dr. Leroy P. Kuhn will speak on "Myositis Ossificans Traumatica" at a meeting of the Chicago Society of Industrial Medicine and Surgery, October 2.

INDIANA

Clinical Lectures for Lawyers.—A course of six clinical lectures for members of the legal profession and students of law will be given by Dr. Bahr in the pathologic department of the Central Indiana Hospital for the Insane in its twenty-third annual program. For a number of years, the hospital has advocated giving a course of clinical lectures to the legal profession in psychology, psychopathology and psychiatry, especially in their relationship to forensic medicine. It is hoped in the near future, in conjunction with the Indiana law schools, to arrange a special program to stimulate a study of psychologic and psychiatric problems from a medico-legal angle for the judges of the courts and members of the legal profession. It is contended that such instruction will qualify an attorney to interrogate the medical witness, regardless of the character of the case. The lectures will deal with (1) the mind as a process of development; (2) more frequent symptoms of insanity; (3) the mental mechanism of dissociation; (4) causes of insanity; (5) classification of mental diseases, and (6) insanity and crime.

KANSAS

Physician Fined.—Following several warnings, Dr. Solomon H. Thompson was fined $5 in the city court of Kansas City, August 4, for failure to report his cases of infectious disease.

KENTUCKY

Hospital News.—Work on the new Logan Hospital is practically completed and the institution will be ready for occupancy in the near future.——A hospital has recently been established for negroes at Versailles.——Construction work has been commenced on the new two-story brick addition to the St. Agnes Sanatorium at Buechel. The building will contain thirty rooms for patients, with sleeping porches and a chapel with a seating capacity for 250 persons.

LOUISIANA

Personal.—Dr. Henry N. Blum and family, New Orleans, are touring in Europe and will visit England, Germany, Austria, Switzerland and Italy.——Dr. Mary Goorwich of Russia has been appointed the first, and only, woman intern at Touro Infirmary, New Orleans. Dr. Goorwich received her medical degree from Tulane University in June.——Dr. Thomas Jefferson McHugh has been appointed health officer of Baton Rouge to succeed Dr. Philip H. Jones, who held that position for eight years.

Dengue Epidemic.—The state board of health has taken steps to determine the origin of a small-sized epidemic of dengue, said to be prevalent in several localities of the state. Fifty cases have been reported from Shreveport, fifty from Jeanerette, four from Lake Charles, two from Morgan and two from Sulphur. Dr. Oscar Dowling, state health officer, has written all health authorities and physicians throughout the state asking cooperation against the disease and outlining methods to combat it. Dr. Dowling said that it may have been imported from Florida or Texas, where the disease is prevalent, by some species of mosquito. Epidemiologists from the state board of health have gone to Shreveport and Jeanerette to study conditions in an endeavor to locate the source of the infection.

MARYLAND

Cumberland Valley Medical Association.—At the annual meeting of the association held in Hagerstown, September 7, Dr. Henry C. Lawton, Camp Hill, Pa., was elected president; Drs. William Hamilton Smith, Hagerstown, Thomas D. White, Orrstown, Pa., and George L. Zimmerman, Carlisle, Pa., vice presidents, and Dr. John J. Coffman, Scotland, Pa., secretary-treasurer.

Halstead Estate Left to the Johns Hopkins University.—By the will of Dr. William S. Halstead, the residue of his estate, valued at approximately $100,000, is left to the Johns Hopkins University, subject to the payment annually to his widow of the profits of 5 per cent. of the value of the legacy. The bequest is to be devoted to research in medicine, preferably in surgery, and is not to be used for buildings. The university is given the right to sell at its discretion any portion of the residue and reinvest the proceeds.

Personal.—Dr. John M. T. Finney has been appointed temporary surgeon-in-chief of the Johns Hopkins Hospital and professor of surgery in the medical school, in place of the late Dr. William S. Halstead. At a meeting of the faculty in October, a committee will be appointed to make a permanent selection.——Dr. Warfield T. Longcope has arrived at the Johns Hopkins Hospital and assumed his duties as physician-in-chief, succeeding Dr. Canby Robinson, who resigned to return to Vanderbilt University. Dr. Longcope comes to Baltimore from New York, where he was Bard professor of practical medicine at Columbia University and director of the medical service at the Presbyterian Hospital. He is a graduate of the Johns Hopkins Medical School, class of 1901.——Dr. F. I. Wertheimer, a graduate of the University of Wurzburg, and recently connected with Professor Kraepelin's clinic at Munich has become a member of the staff of the Henry Phipps Psychiatric Clinic at the Johns Hopkins Hospital.——Dr. Hans C. Syz, a graduate of the University of Zurich, who has recently been associated with Professor Veraguth in Switzerland, and Dr. William Herman, a graduate of the Harvard Medical School and a member of the staff of the Massachusetts General Hospital, have also arrived at the Henry Phipps Psychiatric Clinic, where they will serve on the staff.

MASSACHUSETTS

Hospital News.—A new home is being planned for the Infant Hospital, Boston. It has been announced that it will affiliate with the Children's Hospital of that city.——A new surgical and maternity building will be erected at the New

England Sanatorium at Melrose, it is announced by Dr. William E. Bliss, superintendent of the institution. Work will be started on the project soon.——Plans have been completed for a new administration building with accommodations for fifty patients, a nurses' home, power house and laundry building for the Athol Memorial Hospital at Athol.

MICHIGAN

Michigan State Tuberculosis Association.—The annual meeting of the association will be held jointly with the Michigan Trudeau Society at Grand Rapids, October 5-6. Dr. Mazyck P. Ravenel, past president of the National Tuberculosis Association, Dr. Willis A. Lemon and Dr. Carl A. Hedblom of the Mayo Clinic, and Dr. Norman E. Clarke of the University of Michigan, Ann Arbor, will address the meetings.

MINNESOTA

Hospital News.—Plans are being prepared for a new hospital for incurables to be erected on the city's quarantine property at St. Louis Park, Minneapolis.——The contract has been let for an $18,000 addition to the St. Paul Catholic Orphan Asylum, St. Paul.——The Sisters of St. Francis, who conduct the St. Mary's Hospital, Rochester, have purchased the St. James Hospital at St. James.

Personal.—Dr. John S. Abbott, who for several years has been at the head of the medical department's inspection staff of the city of St. Paul, has resigned. Dr. Arthur E. Nichols has been appointed to succeed Dr. Abbott.——Dr. Aaron F. Schmitt, Minneapolis, has resigned as secretary general of the Southern Minnesota Medical Association.——Dr. Adolphus W. Guest has been reappointed, for a period of two years, as superintendent of the North Dakota State Hospital for the Insane at Jamestown.

MONTANA

Personal.—Dr. Lewis L. Mayland, Great Falls, is a candidate for the nomination of state senator on the Republican ticket.

NEVADA

State Medical Meeting.—The annual meeting of the Nevada State Medical Association will be held in Reno, October 12-14. Dr. Ralph A. Bowdle, East Ely, will preside.

NEW JERSEY

Medical Examiners Appointed by Board of Education.—The Hillside Board of Education has appointed Drs. Laurence G. Beisler, Alvin T. Lippnard, Clayton A. Mentzler of Hillside, and Frederick H. Lovell of Newark as medical examiners for the school board.

NEW YORK

Typhoid Fever in New Rochelle.—Four cases of typhoid fever have been brought to the attention of the health authorities of New Rochelle. They have been traced to a farm in Woodbury, Conn., where many New Rochelle people spent a portion of the summer. It is believed that the infection was conveyed by water. The health department at Woodbury has been asked to make an investigation.

Health Commissioner Returns from Europe.—Dr. Herman T. Peck, health commissioner of Brooklyn, has been traveling in Europe, studying sanitary conditions and health protection in England, France, Italy, Switzerland, Austria, Germany, Holland and Belgium. He arrived in New York, September 7, on the *Homeric*. He stated that England was the most advanced of all European countries in sanitation and health measures.

Hospital News.—Construction work has been started on a new fifty-bed wing for the Saratoga Hospital, Saratoga Springs. This addition will be used as a maternity and children's ward.——Two solariums are being erected at Buffalo Hospital of the Sisters of Charity at a cost of $35,000. The solariums are of brick construction with a tile roof.——A public health laboratory has been established at the Champlain Valley Hospital, Plattsburg. This was made possible by a donation from David Merke of Plattsburg, in memory of his parents. The county will appropriate $2,000 annually for its maintenance.

New York City

National Chemical Institute.—The eighth National Exposition of the Chemical Industries was held in Grand Central Palace, New York, during the week of September 11. The exhibition had more than 400 exhibitors, covering every branch of chemistry and its allied interests and was wider in its scope than any previous exposition of its kind ever held in this country.

NORTH CAROLINA

New Health Officer.—Dr. Charles L. Outland, Raleigh, has been elected full-time county health officer of Carteret County and will remove to Beaufort. Dr. Outland recently returned from Siberia, where he had been on a hospitalization survey for a church missionary society.

Hospital Construction.—Drs. John T. Burrus and H. W. McCain, who are now operating the High Point Hospital, High Point, announce that they will also construct and operate another hospital at Lexington.——Construction work will soon be started on a new eye, ear, nose and throat hospital at Charlotte, which will be erected by Drs. Matheson, Peeler, Sloan and Shirley of that city. The plans call for a four-story brick building.——The contract has been awarded for the erection of a nurses' home and an addition to St. Peter's Hospital, Charlotte. These new buildings will be erected at a cost of $65,000.—St. Luke's Circle of King's Daughters of Raleigh is planning to erect in that city a home and infirmary for old ladies. The building will contain twenty bedrooms, the infirmary and other offices, and will be erected at an approximate cost of $35,000.

NORTH DAKOTA

New Head at Trachoma Hospital.—Acting Assistant Surgeon Clarence E. Downes, head of the Trachoma Hospital at La Moure, has been succeeded by Acting Assistant Surgeon W. C. Thomas, head of the Trachoma Hospital at Pikeville, Ky. Dr. Downes will take Dr. Thomas' place at Pikeville.

OHIO

Fremont Physicians Retire.—Drs. Orange H. Thomas and Frank L. Kinsey, Fremont, both graduates of the Medical College of Ohio, Cincinnati, in 1882, recently retired after forty years' practice. Dr. Thomas is health commissioner for Sandusky County.

Honor Memory of Physician.—The regular monthly meeting of the Warren County Medical Society was dedicated to the memory of Dr. Herschel I. Fisher, who died recently at his home in Lebanon. Dr. Benjamin R. McClellan, Xenia, former president of the Ohio State Medical Association, spoke of his experiences with Dr. Fisher, emphasizing his nobility of character.

Elimination of Local Registrars.—At their third annual conference at Columbus, the health commissioners of the state went on record as favoring the elimination of the more than 1,500 local registrars of vital statistics and their replacement with a local registrar for each health district. This would provide for ninety-five city registrars and eighty-eight general health district registrars, corresponding to the counties outside the cities, a total of 183.

New Appointments.—Dr. Edmund M. Baehr, director of the Bureau of Juvenile Research, has announced the appointment of the following Columbus physicians as members of the consulting staff of the bureau: Dr. Isaac B. Harris, surgery; Dr. Joseph W. Leist, medicine; Dr. William H. Miller, roentgen ray; Dr. Charles H. Hoffhine, ophthalmology; Dr. Hugh G. Beatty, laryngology; Dr. Herbert M. Platter, dermatology; Dr. Milton Jones, genito-urinary, and Dr. Andrews Rogers, obstetrics and gynecology.

Social Service Conference.—During the conference of health commissioners at Columbus, all the social service agencies of Ohio working among the colored people of the state were represented at a meeting held in the Y. M. C. A. for the purpose of arousing the interest of colored social service agencies in health work and linking up their health activities with the work of the state department of health. Dr. Roscoe C. Brown, Washington, D. C., head of the federal government's work among negroes, addressed the conference.

OKLAHOMA

Public Health Conference.—The fifth annual meeting of the Oklahoma Public Health Association will be held in Oklahoma City, October 3-4. C. M. DeForrest, national

director of the modern health crusade, will deliver an address and will assist in laying the plans for extension of health crusade work in Oklahoma schools this fall. Distinguished speakers will address the meeting on the problems of health in industry and the health of the laboring classes.

OREGON

Hospital News.—The Multnomah Hospital, which is being erected on the campus of the University of Oregon Medical School, Portland, will be opened to the public about December 1. The institution has accommodation for 250 patients.——The Portland Free Dispensary has been reorganized and its capacity trebled. The daily attendance has increased from thirty-five to ninety-five during the last year.——The new community hospital at Medford was formally opened to the public, September 5. The building has been equipped with modern conveniences. Miss Elsie Davidson, formerly of the Presbyterian Hospital, Chicago, is superintendent of the institution.

PENNSYLVANIA

Mental Health Clinic.—A permanent mental health clinic has been opened in Wilkes-Barre under the direction of Dr. Horace V. Pike of the Danville State Hospital. This clinic will render service to the people of Luzerne County and the neighboring districts. The need of such a clinic has long been felt in the various welfare organizations.

Hospital News.—A new county tuberculosis hospital for Cambria County will be erected at Cambria on the Little farm, which was purchased for $23,000. It is expected that a 100-bed hospital will be erected, with facilities for increasing the capacity.——When the new buildings are completed at the Methodist Episcopal Hospital, Philadelphia, the number of beds for children will be increased to fifty and for adult patients to fifty-seven. This addition will be opened some time this winter.——The Dixonville and Clymer Miner's Hospital at Dixonville has changed its name and will in future be known as the Two Lick Hospital.

Defective Children May Enter Homes.—The act of 1917 forbidding importation into Pennsylvania of dependent defective or delinquent children does not apply in the case of a child placed in an institution in this state, provided the child is not removed from it or placed elsewhere except in accord with the law, under an opinion rendered to Commissioner of Public Welfare John M. Baldy by Deputy Attorney-General Emerson Collins. The question arose in administration of some of the homes which come under supervision of the department, and Collins holds that an institution is a proper place in which to rear such a child, but that no institution can become a channel through which children may go into other houses of the state.

Camp Healthy Opens October 1.—Camp Healthy, a tuberculosis preventorium, will be dedicated, October 1, by the tuberculosis committee of the Philadelphia Health Council. In it fifty undernourished children taken from homes in which tuberculosis has appeared will be cared for the year round. Boys and girls from 6 to 12 years old will be given the most advanced care and treatment, designed to guard them against lung troubles. Camp Healthy will be the winter successor of Camp Happy at Brown's Farms. The dormitories will be heated, but in their waking hours the children will be in the open air. An open air school will be a feature of the center, and even in the coldest weather the children, warmly clad, will be taught in the open.

Philadelphia

Medical Club Entertains Senator.—At the regular fall meeting of the Medical Club of Philadelphia at the Bellevue Stratford Hotel, September 23, the Hon. George Wharton Pepper, U. S. Senator from Pennsylvania, was the guest of honor.

Pasteur Centenary Celebration.—A celebration of the one-hundredth anniversary of the birth of Louis Pasteur will take place in Philadelphia, Dec. 27, 1922. Tentative plans call for a meeting in the afternoon at the Academy of Music, and a banquet in the evening at the Bellevue Stratford Hotel, at both of which there will be distinguished speakers. A general committee, comprising Drs. Edgar Fahs Smith, Ernest Laplace, Francis X. Dercum, Charles A. E. Codman, Wilmer Krusen, McCluney Radcliffe, secretary, Judson Daland, treasurer, and William Duffield Robinson, chairman, and an honorary advisory committee from all parts of the country have been appointed.

Drug Users Menace City.—Plans to use the two wings of the House of Correction as quarters of victims of the drug habit were agreed on, September 13, at a conference of Director Warburton of public welfare. The proposal will be submitted to the district attorney's office, and if it is accepted, motion will be made to the court that all drug addicts be sent to those quarters for special treatment. There are now between 200 and 300 drug victims imprisoned, and the new quarters will accommodate 500. Dr. J. Blair Spencer, assistant director of welfare and an expert in the treatment of drug cases, will be put in charge. At a conference, it was stated that the Philadelphia Hospital, to which most cases are now being sent, is seriously overcrowded, and some drug victims have been sent to Moyamensing Prison.

SOUTH CAROLINA

Baby Welfare Center.—The Spartanburg County Medical Society has indorsed the plan for establishing a baby health center in Spartanburg. This welfare station will be financed jointly by funds provided by Spartanburg County, the state and the Sheppard-Towner Act.

TENNESSEE

Hospital News.—Joseph W. Purvis, former superintendent of the Methodist and City Hospital, Memphis, has been appointed superintendent of the Baptist Hospital in that city, to succeed Dr. William R. Bethea. Dr. Bethea resigned to devote his entire time to the roentgen-ray department of the Baptist Hospital.——A campaign for funds is being conducted for the erection of a negro hospital in Maury County. More than $1,500 has already been donated in small sums.

TEXAS

Only Embalmed Bodies Allowed on Trains.—A new ruling of the state board of health states that henceforth bodies must be embalmed if shipped on trains. Formerly, when corpses were to be in transit for a brief period, embalming was not required.

UTAH

State Medical Meeting.—The annual meeting of the Utah State Medical Association was held in Salt Lake City, August 31 to September 2, under the presidency of Dr. Augustus C. Behle of Salt Lake City. Dr. John C. Landerberger, Salt Lake City, was elected president of the association and Drs. Joseph R. Morrell, Ogden, and George R. Roberts, Salt Lake City, vice presidents. Dr. William L. Rich will hold his position as secretary of the association until 1923. Dr. Edwin M. Neher was elected two-year delegate to the American Medical Association. The 1923 convention will be held in Salt Lake City.

VIRGINIA

Personal.—Dr. George B. Young, senior surgeon, U. S. Public Health Service, in charge of the Mariners Family Asylum, Stapleton, Staten Island, N. Y., has been appointed in charge of the public health service offices at Norfolk. Dr. Young succeeds Dr. George M. Magruder, senior surgeon, U. S. Public Health Service, who has been transferred to the health office at Detroit, as surgeon-in-charge.——Dr. William S. Keister has been elected health officer of Charlottesville, to succeed the late Dr. R. Lindsay Robertson.

WASHINGTON

State Public Health Association.—At the annual meeting of the Washington Public Health Association held in Tacoma at the same time as the state medical meeting, Dr. Horace J. Whitacre of Tacoma was elected president and Dr. Philip V. Von Phul secretary-treasurer.

State Medical Meeting.—At the thirty-third annual convention of the Washington State Medical Association held at Tacoma, September 5-6, under the presidency of Dr. Wilmot D. Read, the following officers were elected for the ensuing year: president, Dr. John B. O'Shea, Spokane; vice presidents, Drs. Charles B. Ward, Spokane, and Frederick H. Brush, Yakima, and secretary-treasurer, Dr. Curtis H. Thomson, Seattle. The next meeting will be held at Spokane in 1923. A resolution adopting an educational program for the public throughout the state was unanimously adopted.

WISCONSIN

Hospital News.—A state hospital with accommodation for 300 patients will be erected at Portage by the state hospital commission. Work on the project will be started in the near future.——A nurses' home will be erected at the Sunny View

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Sanatorium at Winnebago, it is announced. This will release beds for the use of patients in the main building. The cost of the addition will be $40,000.—A $45,000 addition will be erected at the nurses' home of the Northwestern Branch National Home for Disabled Volunteer Soldiers. Dr. Myron W. Snell is superintendent of the institution.——The contract has been let for the erection of the $1,000,000 hospital group for the University of Wisconsin. Construction work will be started in the near future.——Construction will soon be started on an addition to the Mauston Hospital, Mauston, to be erected at a cost of $75,000.

WYOMING

Personal.—Dr. Albert B. Tonkin, Cheyenne, was unanimously elected state commander of the American Legion of Wyoming at the third annual convention held in Torrington. ——Dr. C. Dena Carter, Thermopolis, has returned from Europe, where he took graduate courses in London, Paris, Berlin and Vienna.

CANADA

Honor for Dr. Currie.—It has been announced that Dr. John Ronald Currie, medical officer of the Scottish Board of Health, Edinburgh, has been appointed to the chair of preventive medicine at Queen's University, Kingston, Ontario.

Tuberculosis Directory.—A directory of Canadian agencies for the diagnosis and treatment of tuberculosis has been compiled by the Canadian Association for the Prevention of Tuberculosis. The list contains information in regard to 396 agencies, and shows that 4,057 sanatorium beds are available.

Hospital News.—Plans have been completed for a new hospital to be erected at Unity, Saskatchewan, at a cost of $60,000. It will be a concrete structure.——Six one-story pavilions will be erected for the Edmonton Isolation Hospital, Edmonton, Alberta. The cost of the buildings is estimated at $108,448 and they will have accommodation for 100 patients.——Two buildings, each to accommodate 100 patients, are nearly completed at the Home for the Feeble-Minded which is being erected at Edmonton at a cost of $84,000. These two structures are the first of sixteen which will be erected on the site.——The cornerstone of the new Muskoka Sanatorium, Gravenhurst, Ontario, was laid recently with appropriate exercises. The former institution was razed by fire in November, 1920. One million dollars was collected from individuals and organizations in Ontario to rebuild the institution. The total accommodations of the sanatorium will be 450 when completed.

GENERAL

The National Tuberculosis Association.—The association has begun its campaign for the next Christmas seal sale, having purchased one billion seals. Five different styles of advertising material, stories and articles on various phases of tuberculosis health problems are described in the circular, which is being sent out by the publicity director.

Pacific Coast Oto-Ophthalmological Society.—At the annual meeting of the society, held in Salt Lake City, September 14-16, the following officers were elected: president, Dr. William H. Roberts, Pasadena, Calif.; vice presidents, Dr. Kaspar Pischel, San Francisco, and Dr. Ashley W. Morse, Butte, Mont.; secretary-treasurer, Dr. Clarence B. Wood, Los Angeles. The next annual meeting will be held in Los Angeles in 1923.

Southern Medical Association.—The sixteenth annual meeting of the Southern Medical Association will be held at Chattanooga, Tenn., November 13-16, under the presidency of Dr. Seale Harris of Birmingham, Ala. Dr. Edward B. Wise, city health commissioner of Chattanooga, will deliver the address of welcome. Dr. Charles C. Bass, dean of the Tulane University of Louisiana School of Medicine, New Orleans, will deliver the oration on medicine, and Dr. Hubert A. Royster, Raleigh, N. C., the oration on surgery.

Journal of Physical Chemistry.—As a result of action by the council the *Journal of Physical Chemistry* is to be published under the auspices of three great English-speaking chemical societies: The American Society, the Chemical Society of London and the Faraday Society of Great Britain, as recently announced in *Science*. It was also reported to the council at the annual meeting, at Pittsburgh, that Francis P. Garvan, president of the Chemical Foundation, had guaranteed $10,000 annually for five years, for publication work.

Fund for Contributions to Chemistry.—At the annual meeting of the American Chemical Society, it was announced that the Allied Chemical and Dye Corporation of New York has instituted in perpetuity an award of $25,000 annually for contributions to chemistry by a chemist of the United States. A specially appointed committee will select a jury to decide annually which chemist in this country has contributed most to the benefit of the science and the world. The letter from the chairman of the Allied Chemical and Dye Corporation stated that they did not desire to limit the gift to any particular field of chemistry, recognizing as they did the importance of them all.

Rockefeller Gift to League of Nations.—In a report from Geneva, August 17, it was stated that the hygiene committee of the League of Nations had decided to accept the offer of the Rockefeller Foundation, amounting to the sum of $60,000 a year for three years, to allow an interchange of staff in the public health services of various countries, and a sum of $30,000 yearly for five years for the development of an international office for distributing information as to epidemics. After the necessary documents are signed, the plan will be put into action at once, and the interchange of staff will begin in October. Officials of the various nations will take a two weeks' course in Brussels and will then spend two months in the health departments of other countries.

American Hospital Association.—The twenty-third annual conference of the American Hospital Association will be held in Atlantic City, N. J., September 24-30, under the presidency of Dr. George O'Hanlon, Bellevue Hospital, New York. The meeting will be held on Young's Million Dollar Pier, and in conjunction with the annual meeting of the Occupational Therapy Association. The regular sessions will close in Atlantic City on Thursday evening, and Friday and Saturday will be spent visiting the hospitals of New York and Philadelphia. The Pennsylvania Railroad will operate special cars from Chicago to Atlantic City on September 22, 23 and 24, at 10:30 a. m., central time, stopping at Plymouth and Fort Wayne, Ind., Lima, Crestline, Mansfield, Canton and Alliance, Ohio.

Medical Scientists to Visit America.—The minister of education has accepted on behalf of the Japanese Government an invitation from George E. Vincent, president of the Rockefeller Foundation, New York, to name and send a commission of Japanese medical scientists to visit the medical institutions of the United States and Canada, as guests of the Rockefeller Foundation. This idea originated from the success that attended the visits to America of similar commissions from Great Britain, Brazil and Belgium. The commission will consist of four or five men, well known as representatives of the important branches of medical science and of the principal medical universities and institutes of the country. The spring of 1923 has been selected as the most suitable time for this visit, which will last about three months.

Protection of Synthetic Drug Industry.—The conference committee of the Senate and House on the tariff bill refused to provide for an embargo or prohibitive duties on dyes and the related synthetic organic drugs and medicines as requested by the American chemical industry. In their first report to Congress, the conference committee restored the embargo provisions, but the House of Representatives refused to accept this provision of the bill and also the schedule fixing a duty of $30 a ton on potash. Following the refusal to accept these two provisions of the tariff bill, the conferees agreed to a compromise, which fixes rates of 55 per cent. on intermediates and 60 per cent. on finished coal tar dyes and chemicals, with a specific duty of 7 cents a pound, in each case to remain operative for a period of two years, following which ad valorem rates of 40 and 45 per cent. and 7 cents specific are to apply. The House accepted by a decisive vote the amended conference report, and on September 19 the bill as passed by the House also passed the Senate.

Alcoholic Liquors Ruled Nonmailable.—Surgeons, physicians and pharmacists are denied the use of the mails for the shipment of intoxicating liquors, according to an interpretation of the postal laws and regulations made by Postmaster-General Work. Even should the container bear the words prescription, or superprescription, of the sender, and the liquor is designed for medicinal purposes, postmasters are instructed to prevent such shipments through the United States mails. The decision was made by the Postmaster-General supporting a ruling of the postmaster at Philadelphia that liquor could be confiscated if discovered in the mails. A physician at Harrisburg, Pa., was responsible for the seizure of a bottle of whisky sent through the mails by a druggist, at his direction, to his son and under guarantee of a prescription that it was to be used for medicinal purposes. The postmaster-general in his ruling declared that the

entire subject was covered by the United States criminal code, which provides that "all spirituous, vinous, malted, fermented or other intoxicating liquors of any kind are hereby declared nonmailable and shall not be deposited in or carried through the mails."

Personal.—Dr. Jesse K. Marden, an American physician of long experience in the Near East, has been appointed successor to Captain E. A. Yarrow, who recently retired as director general of the American Relief activities in Armenia and Transcaucasian Russia. Dr. Marden is a graduate of the University of Michigan, but was born in Turkey and has spent most of his time there. For the last six months he has directed the fight against cholera and typhus among the famine victims. Dr. Marden and Dr. Russell T. Uhls, White City, Kan., chief surgeon of the Near East Relief Trachoma Hospital, Alexandropol, Armenia, are members of a newly created administrative committee, which will direct the work of the Near East Relief in Transcaucasia. — Dr. Henry Hanson, formerly of South Dakota, has just returned from Lima, Peru, and will take up research work at Johns Hopkins University, Baltimore. Dr. Hanson has just completed a successful campaign against yellow fever in Peru and is now directing reorganization of the public health forces of that country with a view of eradicating bubonic plague. He was formerly health officer at Panama, and at one time bacteriologist for the state of Florida. — Dr. Bolivar J. Lloyd, U. S. Public Health Service, has been assigned to Baltimore to succeed Dr. Benjamin S. Warren.

Physical Examination of Postoffice Employees.—At the request of the Postmaster General, boards of medical examiners from the U. S. Public Health Service in New York and Chicago examined postoffice employees to obtain a survey of health conditions existing in the federal postoffices in those cities. Only those employees who volunteered were examined, a total of 985, from all the different occupations in the postoffice department. A thorough physical examination was made in each case, and the results were classified. In Class 1 (no physical defects) there were five employees; in Class 2 (minor defects requiring observation or attention) there were twelve; in Class 3 (moderate defects requiring hygienic correction or minor medical, surgical, or dental attention) 258; Class 4 (moderate defects requiring medical supervision as well as hygienic correction), 336; Class 5 (advanced physical impairments requiring systematic medical or surgical attention), 234; Class 6 (serious physical defects requiring immediate medical or surgical attention), 140. It was found in comparing the results with those of the examination of garment workers that arteriosclerosis, aortic, mitral, and tricuspid diseases and myocarditis were from three to nine times as frequent among postoffice employees as among garment workers. Albuminuria and diabetes were three to four times as prevalent among garment workers as among the postoffice employees. There are a majority of employees in the sixth class and a considerable number in the fifth and fourth classes whose physical condition demands constant medical supervision if they are to be continued in their present work. Constant medical supervision does not mean daily supervision, but as in industrial plants, these cases should be under the observation of a medical officer, their work should be regulated and the progress of their infirmity closely watched. Furthermore, when the diseases which these employees are suffering from become severe enough to keep them from work, such incapacity will be complete, and, if not fatal, will at least mean continuous disability. Analysis of the defects found brings out the necessity of periodic physical examination for government employees, with advice, and such treatment as is allowed under the law; it also brings out the necessity for a competent physical examination on entrance into government service to exclude those with marked physical defects, or at least to record such defects to avoid compensation. The service is to be extended to all postoffice employees in the country.

Bequests and Donations.—The following bequests and donations have recently been announced:

Federation for Support of the Jewish Philanthropic Society of New York, the income of the residuary estate of William B. Kaufmann, amounting to $500,000, on the death of the present beneficiaries.

Asbury Hospital, Minneapolis, $300,000, by Mrs. H. H. Williams of Rochester.

University of Chicago, one third of his $125,000 estate for the endowment of scientific scholarships, on the death of two sisters, and $2,500 to Beloit College, under the will of Prof. Rollin D. Salisbury of Chicago.

Methodist Hospital, Indianapolis, and the Lake Forest Hospital, Lake Forest, Ill., each $100,000, for the erection of new buildings, and St. Vincent's Hospital, Indianapolis, $10,000, by the will of Delavan Smith of Indianapolis.

Frankford Hospital, Philadelphia, $100,000, by the will of the late John W. Wilbraham.

Cameron, Texas, for the erection of a hospital to be known as the Carrie Yoe Memorial Hospital, $75,000, by the will of Mrs. Carrie Yoe.

Knox County General Hospital, Rockland, Me., $70,881, from collections and pledges.

Lenox Hill Hospital, New York, $50,000; St. John's Guild, for maintenance of floating hospital, $25,000, and the Norwegian Lutheran Deaconess Home, Brooklyn, $25,000, by the will of Frederick Betuch.

Ann May Memorial Hospital, Spring Lake, N. J., $40,000 for the erection of a nurses' home, as a memorial to her husband, by Mrs. Blanche Roebling of Trenton.

Charity Hospital, New Orleans, for an isolation hospital, $30,000, and the Eye, Ear, Nose and Throat Hospital, New Orleans, $2,000, by the will of William G. Vincent, on the death of Mrs. Vincent.

Children's Hospital, Boston, and the Newport (R. I.) Hospital, each $25,000; Berea College, Kentucky, Hampton Institute, Virgina, and the Tuskegee Institute, Alabama, each $10,000, by the will of Arthur B. Emmons of Newport.

St. Luke's Home for Tuberculosis, Phoenix, Ariz., and the Allendale Farm for Orphans, Lake Villa, Ill., each $24,482, by the will of William V. Ames of Libertyville, Ill.

Women's Southern Homeopathic Hospital of Philadelphia, $11,500; $10,000, for the endowment of two beds and the remaining $1,500 for general purposes, by the will of Charlotte C. Hogan.

Presbyterian Hospital, Philadelphia, $10,000, by the will of Alter Megear.

Lawrence and Memorial Associated Hospitals, New London, Conn., $7,500, from a bazaar held in the hospital grounds by the Women's Auxiliary.

Methodist Episcopal Hospital, Philadelphia, $5,000, and the Children's Hospital of Philadelphia, $6,000, for the endowment of free beds, by the will of Marie M. Boyd.

Johns Hopkins Hospital, Baltimore, $1,000, by the will of Myer D. H. Lipman.

Lebanon, Mount Sinai and Beth Israel hospitals, New York, each $50, by the will of Meyer Goldberg.

Biloxi City Hospital, Biloxi, Miss., $100 toward construction of a nurses' home, by the Woman's Auxiliary.

Charlotte, Mich., for the establishment of a municipal hospital, to be known as the Guy Raymond Palmer Memorial Hospital, her home and property, on the death of her husband, Dr. Emory C. Palmer, by the will of Mrs. Palmer.

LATIN AMERICA

Venereal Disease Hospital in Guatemala.—The Director General of Police has opened a hospital for the exclusive treatment of venereal disease in the city of Guatemala.

Postponement of the Mexican Medical Congress.—The committee in charge of the arrangements for the Seventh National Medical Congress in Mexico has found it necessary to postpone the celebration of the congress from September 3-10, to September 22-30, 1922. A 50 per cent. reduction in railroad fares is made to delegates.

New Mexican Journal.—The Mexican army medical corps has begun the publication of a new journal, *Revista de Ciencias Médicas*. The editor is M. Godoy Alvarez, and the address is Hospital Militar de Instrucción, Cacahuatal 4, México, D. F. The Mexican army medical corps was organized, Jan. 1, 1917, as a special department in the army.

South American Conference on Sanitation.—The different South American countries have been invited by the state department of Uruguay to a sanitary conference of South American republics, which will be held in Montevideo in January, 1923. Among the subjects will be medical curriculums and the best means of furthering scientific interchange in South America.

Rockefeller Foundation Aids Honduras Sanitation.—According to the agreement between the Rockefeller Foundation and the government of Honduras, a hookworm disease section and a public health department were organized in that country. The Foundation will bear 66 per cent. of the expenses during the first year and 34 per cent. during the second, and the Honduras government will assume all expense from the third year on.

Special Number of Argentine Review.—The last issue of the *Revista del Circulo Médico Argentino* and *Centro Estudiantes de Medicina* is an elaborate number of more than 700 pages which bears the word "Homenaje" printed in gold across the cover. It is dedicated to "Foreign Editors" in general and to the twenty-four in particular whose names are published regularly on the cover as *redactores del extranjero*. The list includes Ascoli of Italy, Leriche of France, von Noorden of Germany, Maddock Bayliss and others of different countries, with the largest number in Spain and Portugal. The United States is represented in this list by W. J. Mayo and Charles H. Mayo. The number contains articles by twenty-four leading Argentine clinicians. Most of their research has already been summarized in THE JOURNAL but this profusely illustrated review brings the latest results.

Personal.—Dr. Alfredo G. Dominguez, Havana, Cuba, sailed August 23 on the *Paris* for Havre.——Dr. Rafael Hernández, sanitary delegate of the Mexican Public Health Department at Agua Prieta, Mexico, has spent several weeks in the United States, visiting Rochester and Chicago clinics and studying laboratory methods.——Dr. Luis Diaz has returned to Matanzas, Cuba, from his stay in the United States.——The Mexican Sociedad de Biologia has elected to honorary membership Prof. Ramon y Cajal of Madrid and Prof. B. A. Houssay of Buenos Aires, a member of the editorial staff of the *Semana Médica*.——Prof. F. Fülleborn of the Institute for Tropical Medicine at Hamburg recently arrived in El Salvador and gave a lantern lecture in German in the university hall at San Salvador on "Modes of Penetration of Ascarids into the Human Body." He is making a trip down the Pacific coast of Latin America.——The *Anales de la Sociedad Médico-Quirúrgica* of Guayaquil reports that one of its editors, Dr. J. M. Estrada Coello, has been appointed the representative of the society and has left for the Child Welfare Congress in Rio de Janeiro.——The Liga Antialcoholica Nacional has been recently founded in Colombia by the initiative of the national public health service. It has been endorsed by the Academia Nacional de Medicina and the *Repertorio* appeals to physicians throughout Colombia to sustain this movement, saying that the time is propitious for an effectual campaign against the abuse of alcohol.

FOREIGN

The Record for Oil Immersion Lenses.—The German firm which recently produced its two hundred thousandth microscope, now has turned out its one hundred thousandth lens for oil immersion. It was sent to Prof. L. Aschoff, the pathologist of Freiburg.

Exhibition of War Wounds.—Three thousand specimens of war wounds have been mounted and placed in the museum of the Royal College of Surgeons of London. The collection is the property of the Army Medical Council, and will be available to Army medical officers.

Institute for Roentgen-Ray Research.—The organization founded to promote the welfare of the University of Bonn has endowed the university with an institute for research with the roentgen rays. Professor Grebe is in charge and it is expected that the institute will be inaugurated this fall.

Record of Arsphenamin Number.—The authorities in Germany have decreed that the number of the arsphenamin preparations used must be recorded each time by the physician, and the local health officer notified if untoward phenomena are observed with it. This will allow the defective series of the drug to be promptly withdrawn from sale.

Medical Service of the Irish National Army.—The Irish Army Medical Council has recently been formed by the Irish government, with Dr. Maurice R. J. Hayes as chairman, to organize on a regular basis the medical service of the army of the Irish Free State. Lieut.-Col. B. Forde and Dr. P. J. Smyth have been appointed full-time officers of the new medical council.

Hasler Hospital Memorial.—A memorial tablet containing the names of more than 200 medical officers and nurses of the British Navy who were killed in active service during the World War, was unveiled, August 17, by Sir Robert Hill, medical director general, Royal Navy, at the Hasler Hospital. This tablet is one of three to be erected; the others will be at Chatham and Plymouth.

Congresses Held in Europe.—The Association of German Scientific Men and Physicians held its one hundredth meeting at Leipzig, September 18-24. Prof. Albert Einstein gave one of the addresses at the meeting.——The one hundred and third annual meeting of the Swiss Scientific Society was held in Berne, August 24-27. Dr. C. E. Buye of Geneva spoke on "The Trend of Modern Physics."

Founding of Society for Industrial Hygiene.—Our German exchanges state that the hygiene institute of the University of Leipzig is organizing a German Gesellschaft für Gewerbehygiene. The leading men in the movement are Prof. K. B. Lehmann, director of the hygiene institute at Würzburg, Dr. Koelsch and Dr. Leymann of the state department of labor, Dr. Gottstein of the state department of public welfare, and representatives of employers and employed in the various industries.

Surgical Congress in Poland.—The *Polska Gazeta Lekarska* gives the details of the nineteenth congress of the Polish Surgical Association which was held at Warsaw late in June. The main papers read were by Jurasz of Posen on "Ulcer of the Stomach and Duodenum"; "Tuberculosis of Bones and Joints," by T. Ostrowski of Lwow; "Treatment of Surgical Tuberculosis in Sanatoria," by Lapinski of Warsaw, and "Tuberculosis of Internal Organs," by Lesniowski of Warsaw. The *Przeglad Chirurgiczny* of recent date contains the papers read at the preceding congress in 1921.

Seventy-Fifth Anniversary of Belgian Medical Journal.—The *Archives médicales Belges* is the official organ of the medical department of the army of Belgium, and the August number is the seventy-fifth anniversary of its foundation. It was founded by Dr. J. F. Vleminckx, who was a leader in the revolution of 1830 and organized the medical department of the Belgian army, and founded the Académie de médecine as well as the *Archives*. His name is known outside Belgium by his solution of lime and sulphur for seborrhea. This issue is devoted mainly to historical retrospection, tracing the history of the army medical department and of the monthly *Archives* down to date.

Pasteur Centennial.—The annual meeting this month of the Fédération médicale Belge at Antwerp was devoted to a celebration of Pasteur's centennial and also the centennial of a Belgian physician, Dr. Willems of Hasselt, who was a precursor of Pasteur in certain lines. A historical exhibition was one of the features of the meeting. It was arranged by the Cercle médical of Antwerp and the Belgian Société d'histoire de médecine. The only papers on the official program outside of those devoted to the centennials were on "The Plethora of Physicians in Belgium," and "Patent Medicines and the Fight Against Quackery." Dr. Waucomont was the speaker, opening the discussion on the last subject.

Fund Needed to Continue Laboratory.—Dr. Otto Lipmann of Berlin states that he will be forced to give up his scientific work unless funds are available for him to continue with his laboratory of applied psychology. The Emergency Society for German and Austrian Science and Art has announced that $200 will be voted by it, provided that American psychologists pledge an equal amount. At the suggestion of the president of the American Psychological Association, J. B. Miner of the University of Kentucky will receive contributions to the fund which will be used to aid Dr. Lipmann to continue his chosen work. Dr. Lipmann's assistance in founding and editing the *Zeitschrift für angewandte Psychologie* and its supplements, and his important contributions to educational and vocational psychology are well known.

Personal.—Dr. N. H. Choksy, Bombay, was presented by the president of the Medical Union, recently, with an illuminated address referring to his services to the city, extending over thirty-four years, and referring to his "courage, zeal, energy beyond all praise and rare devotion to duty in dealing with a strange and unknown disease."——Dr. S. M. Vassallo (Colonial Service) has been awarded the Duncan Medal by the London School of Tropical Medicine.——Dr. Vdenek Klan, of Czechoslovakia, sailed for Europe from New York, August 23, on the *Resolute*.——Sir James W. B. Hodsdon has retired as senior surgeon of the Royal Infirmary, Edinburgh.——Mr. Archibald William Cuff, F.R.C.S., surgeon to the Royal Infirmary, Sheffield, has been elected to the magisterial bench as a justice of the peace for the city.——Dr. Francis Warner, consulting physician to the London Hospital, has been awarded a Civil Service pension of $500 per annum in recognition of the services rendered by him in his investigation into the mental and physical conditions of defective children.

Deaths in Other Countries

Dr. **James A. Mansell Moullin,** for forty years connected with the Soho Hospital for Women, London, aged 72.——Dr. **John A. Turner,** health officer of Bombay, India, 1901-1919, August 21, in England.——Dr. **M. Carrington-Sykes** of London, August 25, aged 63.——Lieut.-Col. **A. F. Stevens,** August 20, at Gava, India, from cholera.——Dr. **Matthew M. Bird,** for thirty years superintendent of St. Mary's Hospital, London, August 27.——Dr. **Clement J. Baker,** Uganda Medical Service, August 7, at sea.——Dr. **Julian Taplin,** suddenly, at Nice.——Lieut.-Col. **Donald Elcum,** Indian Medical Service, August 13, in London, aged 69.

CORRECTION

Enrolment of Students at London, Ont.—In the item published two weeks ago, the limitation of students to be accepted by the Western University Medical School, London, Ont., should have been stated as fifty instead of fifteen. The report that the "medical colleges in Canada have turned out more physicians than the demand warrants" is also said to be incorrect.

Government Services

U. S. Veterans' Hospital No. 75

A department of academic training has been established at the government hospital for disabled ex-service men at Colfax, Iowa. This is designed to prepare those who want to take additional vocational training, and will be given to the men according to the extent of their disability. Those ranked as No. 2 will get free training with a cash allowance of $80, while those classed as No. 3 will receive training but no money. A moving picture screen has been erected in the hospital grounds, arranged so that every patient, including those in beds upstairs, can see the films. Dr. Walter A. Hodges is the executive officer of the institution.

U. S. Veterans' Bureau Hospitals

During the fiscal year ended June 30, the total cost of operating U. S. Veterans' Bureau hospitals was $23,530,916. During the fiscal period, there was rendered a total of 4,966,403 patient days of relief, resulting in a daily cost for each patient throughout the year of $4.74. This total operating cost is not the gross cost for the maintenance and upkeep of hospitals, but represents the net cost of operation and excludes the cost of all major repairs and alterations and the cost of nonexpendable equipment and supplies. The bureau is now operating thirteen tuberculosis hospitals in various parts of the United States, all of which were transferred from the U. S. Public Health Service, April 30. Temporary buildings are gradually being replaced by permanent construction.

Officers Rated "Average Efficiency" to Be Retained

Officers with a rating of "average efficiency" will be retained in the United States Army, Secretary of War Weeks announced this week, in discussing the bill recently passed by Congress, preventing the wholesale elimination of the commissioned personnel of the service by the 1923 appropriation bill. The army rating of "average" for officers is exceedingly high and as laid down in the regulations is defined as "Efficient: duty well performed; up to standard; qualification satisfactory." Before Congress amended the recent elimination law, Secretary Weeks pointed out, it would have been necessary to separate a large number of officers from the service with "average" ratings, but with the extended demotion list now provided, the men to be stricken from the rolls include only those below average rating. The change in the law is expected to facilitate the work of the elimination board and also hasten its work. Surg.-Gen. M. W. Ireland of the medical corps is a member of this board.

Resolution Offered for Investigation of Veterans' Bureau

Senator King has introduced into the Senate a resolution demanding an investigation of the entire activities and operations of the U. S. Veterans' Bureau. The resolution provides for the appointment of five senators to conduct the inquiry. In the resolution is included the charge that the U. S. Veterans' Bureau has failed properly to expend the moneys appropriated by Congress for the care and treatment of disabled war veterans. It is also alleged that the bureau is the subject of continual complaint because of the delay and dilatoriness in making physical examinations, awarding compensation and hospitalizing sick ex-service men. The resolution was referred to the committee on audit and control of the contingent expenses of the Senate. Another resolution of similar character was introduced in the House of Representatives by Representative Rosedale of New York, asking an investigation of the alleged brutal treatment of war veterans who are patients at U. S. Veterans' Bureau Hospital No. 81, in the Bronx, New York. The resolution cites that conditions existing at this government institution "constitute a disgrace to the nation." One patient, it is claimed, was brutally and violently assaulted; while reference is made to the charge that patients with mild nervous disorders are confined with violently insane patients for disciplinary purposes. Improper diet and denial of medicines to patients and the release of disabled inmates before they are cured, to roam the streets of New York, are among the other allegations.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 1, 1922.

Cremation in France

At the last general assembly of the Société pour la propagation de l'incinération, the general secretary of the society presented some interesting facts on the practice of cremation in France. In 1921, the number of cremations effected in Paris alone rose to 4,877, 2,727 of which were fetuses, 1,593 were bodies coming from the postmortem rooms of Clamart, Val-de-Grâce and the Faculté de médecine, while 551 cremations were carried out at the request of relatives or friends of the deceased. Of the latter, there were 269 bodies of males and 282 of females. Only sixty of these were cremated gratuitously—the remaining 491 cremations were paid for. The statistics show that 440 of the bodies were from Paris proper, sixty-five from the suburbs and forty-six from the provinces. The total number of cremations in 1921 is only nine less than in 1920, in spite of the high cost of labor, increased transportation charges and heavy funeral expenses, and notwithstanding the shutting down of the crematories in the provinces. At Lyons the situation remains unchanged, owing to the almost prohibitive prices demanded by the municipality. At Marseilles, interest in the movement has begun to increase again since December, 1921. Up to May 11, twenty-six bodies were cremated here in 1922. At Strasbourg a society for the promotion of cremation was founded last March. It is planned to form a federation of all similar societies in Alsace and Lorraine, after the type of the Paris federation. Thanks to the persevering efforts of the new society, a municipal crematory—a gigantic necropolis—begun eight years ago, has now been completed. The principal building consists of two funeral halls, in one of which is a crematory apparatus, together with adjoining rooms for various purposes, which, taking it altogether, constitutes a model equipment.

The fact must be recognized that, while the practice of cremation in France is not in a state of retrogression, as its opponents are pleased to declare is the case, the movement might, nevertheless, make more rapid progress if the public authorities gave it their support by proclaiming the superiority of cremation over inhumation, and emphasizing the dangers of interment.

Professor Pinard, president of the society, has made representations to the prefect of the department of the Seine with a view to obtaining a reduction from the present schedule of rates and certain other concessions with respect to the practice of cremation. He has met with obstacles of a financial nature principally, which under the present circumstances it does not seem possible to overcome. The fact cannot be disguised that the municipal administration, having to grapple with enormous difficulties in connection with the annual municipal budget, finds that inhumation, the cost of which may be reduced to a minimum, is, on the whole, more expedient than cremation at the present high rates. A campaign in favor of cremation would, therefore, be inopportune at present. Thousands of families are exhuming from military cemeteries at the front the remains of loved ones, at sight of which they are plunged anew in tears and grief. It would seem better if the period of mourning could be allowed to pass, and, later, steps could be taken and influence brought to bear on the public authorities at a time when the society for the promotion of cremation would be in a better position to develop the material, hygienic and moral advantages of cremation.

Pinard thinks that the *esprits libres*, more especially scientists and men of learning, ought gradually to adopt another practice which might be regarded as preliminary to cremation; namely, the dedication of their bodies to medical schools for purposes of study and dissection. The present extreme scarcity of anatomic specimens, which are absolutely indispensable for medical study, creates a peril which is constantly increasing. If all bodies are taken to the cemetery, none remain to serve for postmortem investigations and purposes of dissection. It is therefore the duty of the cremationists to bring about a reaction against the prejudice that it is a disgrace for one's body to be taken to the postmortem amphitheater before it is cremated. If our students should become entirely dependent on illustrations in gaining a knowledge of anatomy, it is to be feared that medicine and surgery will suffer a period of retrogression for which the living will have to pay heavily. In order to ward off this danger, apostles must needs rise up to point out the way of salvation. In this connection, it may be stated that Pinard has the great satisfaction of having secured the consent of his family that his body shall be turned over to a medical school, for purposes of study and dissection, before it is cremated. He expresses the hope that others may take similar action.

The Rockefeller Foundation and the Exchange of Sanitary Personnel

The exchange of sanitary personnel, a plan suggested by the League of Nations Health Conference and for which the financial cooperation of the Rockefeller Foundation has been assured (THE JOURNAL, Aug. 5, 1922, p. 485), will probably be begun the coming October. For a period of two weeks, functionaries of various nationalities—a Bulgarian, two Belgians, two Czechs, five Italians, five Poles, five Russians and two Serbians—will pursue an intensive short course at Brussels, following which they will spend two months in the public health services of different countries.

A Communication on Beethoven's Deafness

At the tenth international congress of otology, recently held in Paris, Dr. G. Canuyt of Strasbourg presented a communication on the deafness of Beethoven, which had its onset when the composer was 26 years old. At the age of 38, Beethoven had become completely deaf; he died at the age of 57. He was probably affected by a progressive type of bilateral sclerotic otitis. This diagnosis seems the most likely, judging from his personal statements, the clinical history of the affection, the results of necropsy and the accounts of his friends. Canuyt raised the question as to the effect of Beethoven's deafness on his work as a composer. He thinks that the sublime works of the great musician were written while he was in great pain. It was in this silence of night that he created his last five sonatas, his last six quartets, the Mass in D and the Ninth Symphony. Beethoven dwelt in a realm above mankind because he was separated from the world.

MADRID

(From Our Regular Correspondent)

Aug. 12, 1922.

Housing Problem

As a result of the rise in prices of construction materials and the constant increase in the cost of labor, coupled with shorter working hours and lowered efficiency, building operations have practically ceased in Madrid, and a period of much suffering is anticipated as regards men employed in the building trades, who, by the way, comprise the majority of workers in Madrid. Labor, aroused to this danger, is trying to center the attention of the public on the menace arising from crowding in the poorer sections of the city. Dr. Milla recently gave a lecture at the Casa del Pueblo (workingmen's hall) in which he dwelt on the unhealthfulness and expensiveness of lodgings in Madrid. He showed that crowding was one of the causes responsible for the high death rate. The Madrid death rate has ranged, in the last few years, between 27 and 30 per thousand; while in any country in which there is proper sanitation it should not exceed 15 per thousand. Madrid has, therefore, a mortality 50 per cent. higher than towns of this type in Europe and America. The number of houses (buildings) in Madrid is 14,977, while the number of lodgings or residences is 158,813, which gives a proportion of 6.43 persons to each lodging. In La Inclusa district, 100,000 people live in 932 buildings, with a total of 14,592 apartments, which shows a proportion of nearly ten persons to each apartment. In 120 houses in this district there are 55,667 persons. In the house at No. 16 Dr. Mendez Alvaro Street, having two floors and an attic, 635 persons are lodged, and in another, at No. 37 Ronda de Segovia, with three floors, there are 665 persons. Fifteen houses in the Latina Hospital and La Inclusa districts hold 6,235 persons. In the so-called hallway houses (tenements), the annual death rate is 50 per thousand. Besides crowding and promiscuity, we must take into account the lack of light and air in these houses in which the lower middle and the poor classes live or, rather, die. The complete lack of ventilation causes the residents to feel even more tired when they get up than when they went to bed. The average life expectation among workers is thirty years; in the well-to-do classes, fifty years. These things happen, according to Dr. Milla, because in Spain problems related to health and life are not properly studied. A senator stated recently that in the Spanish army ten millions are spent annually on music and only eight millions on sanitation. Dr. Milla suggests as a solution to the problem of securing healthful, cheap houses for the masses, a law providing for compulsory expropriation of any urban land not in use at present. This land could be sold afterward at the actual purchase price plus the interest on the funds spent.

Sanitary Survey by the King of Spain

Las Hurdes is an extensive area of poor land enclosed by rocky mountains, in the western part of Spain, in the provinces of Caceres and Salamanca. This region has been much studied throughout the centuries. It has been a subject coming up repeatedly for discussion at congresses, which have proposed varied solutions of the problems of poverty and disease arising in this great expanse of stony and rocky ground where practically the only living creatures are the malaria germ and its vector, the mosquito. At one of these congresses, the inability of Spanish statesmen to remedy our evils was exemplified, since one of the most cultured among them, Sr. Moret, suggested that the best way to redeem Las Hurdes was to install telephones there. At any rate, Las Hurdes has continued to be a neglected spot, with a few decaying villages scattered here and there. Hunger, malaria, destroying and atrophying the race from the oldest times, myxedema and tuberculosis have cooperated with the poverty of the land and the rough climate further to depopulate that stony area. Dr. Marañón, physician of the Public Assistance of Madrid, Dr. Goyanes, surgeon of the same organization, and Dr. Bardají, provincial inspector of Salamanca, only a few months ago made a visit to Las Hurdes, and put on record their impressions in a report on file in the central office of public health. Man is disappearing from Las Hurdes from exhaustion. If any human beings are left, this is because foundling asylums send their inmates there. These are welcomed by the villagers, anxious to receive the small subsidy paid by the government for the care of these children.

At a banquet attended by the king and by scientists, such as Ramón y Cajal, and Dr. Marañón, reference was made to Las Hurdes, and the king expressed a desire to do something for this small number of Spanish subjects so much in need of protection and charity. Dr. Marañón, who had just visited the region, suggested to the king the advantage of his making a direct survey of Las Hurdes, a thing never before done by any Spanish king. The king, who never spares himself when the public welfare is concerned, welcomed the idea, and a few days afterward all Spain learned with pleasure that the king was on his way to Las Hurdes. Public officials were not so well pleased, not taking kindly to the idea of a horseback trip of more than 60 miles through rocky mountain paths, having for its only purpose the survey of places so far only visited by poor village priests. Nevertheless, the king visited Las Hurdes. In five days, he covered more than 60 miles on horseback under a burning sun and in unbearable heat, as the climate is virtually torrid, snatching just enough sleep in army tents in the field to give a semblance of rest. In his inspection, the king and his escort saw lands parched through centuries of aridity; mountain torrents which break down and carry along rocks when it rains, but which bring no moisture to the land, which, because of its sloping character, becomes dry a few minutes after a flood; vast mountains without a single growing plant, and at the bottom of the valleys swampy ground where anopheles breed and intestinal parasites keep alive infection. When, perchance, a man was found, he was either hungry or malarial. Some of the people are cretins. It is now intended to solve the Las Hurdes problem, creating a commission charged with the special duty of supervising that region, and undertaking especially its sanitary improvement.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 18, 1922.

Enlargement of the Medical School

At a recent meeting at the medical school, attended, at the invitation of the dean, by several physicians who are members of congress, it was agreed to ask the national government to turn over to the school the four squares that surround the Hospital de Clinicas, which have already been expropriated in order to construct the Polyclinic Hospital, planned for several years. It is intended to preserve the present streets, thus eliminating the chief obstacle to the construction of the new hospitals. Several institutes relatively independent will be built. The intention is to provide Buenos Aires with hospitals as complete as the best in the world, in order that this city may become a first-class medical center.

Smallpox

Although the epidemic is subsiding, smallpox has not completely disappeared from Cordoba. Isolated cases have appeared in other provinces, especially Salta, where there is a small focus.

Federal Powers and Public Health

Our federal constitution endows each province with a large degree of autonomy, which naturally extends to the supervision and preservation of public health. But, in practice, as soon as an epidemic breaks out, they are compelled to ask assistance from the national government, either because of lack of the necessary sanitary resources or because these are not sufficient. However, as a rule, national assistance is requested only after the epidemics have become serious, because their spontaneous subsidence was expected, or the campaign against them has been poorly conducted. This gives rise to a real danger that such epidemics may spread to other regions. In order to obviate this difficulty, the national authorities intend to submit to congress a law authorizing the direct intervention of the government in matters related to public health throughout the country.

Conflict in the Charities Association

The large sums derived from the national lottery and other appropriations from the national government are devoted to the maintenance of the activities and hospitals conducted by the National Society of Charities. This association is directed by a group of society women, and its religious tendency is very marked. For a long time, this system has caused no protests, but little by little the number of persons against it is increasing. Several reasons are advanced against the continuation of the present system. Last year, the Argentine Medical Association protested against the public beds offered in the hospitals operated by the Charities Association, claiming that well-to-do-patients were admitted to them and thus the surgeons' business suffered. At a meeting of the directing board of the Charities Association, one of the most prominent Argentine surgeons, Dr. Belaustegui, stated that he did not favor the present organization, because of its old-fashioned tendencies. The president of the association admonished Dr. Belaustegui, who, rather than submit to any pressure, resigned as a surgeon of the Rivadavia Hospital, in which he had practiced for twenty-five years, with much success. This event has caused many protests on the part of physicians and even the public. It may be stated without exaggeration that this case is the most powerful argument so far presented against the present system. All this suggests that in a few years a change will be brought about by the growing pressure, due to public opinion.

BUCHAREST

(From Our Regular Correspondent)

Aug. 30, 1922.

Vienna Professors Leaving the University

A Vienna University lecturer who has had twenty-two years' continuous work in pathologic anatomy, and who has left Vienna and the university because he is unable to support himself and his family from his income, made the following statements:

The economical situation created by the war inflicts the greatest burden on the representatives of science. While some classes are abounding in worldly goods, the members of the middle class, teachers, officials, professors and physicians, suffer unimaginable misery. The financial evils have forced the most eminent professors of Vienna University to resign because they cannot see their families suffer from hunger. The position of university professors was not enviable in peace times. The great mental effort expended was out of all proportion to the small salary received; but they waited for better times. Since the war, most salaries have risen with the rising prices; only the salary of the university professor has remained below the level adequate for comfortable living. The total income of a Vienna professor in peace times (excepting, of course, professors of medicine and surgery, who had excellent salaries) was 12,000 crowns; that is, about $2,400. Today, it does not amount to 600,000 crowns, although every workman makes at least 1,200,000 kronen a year (one dollar is worth about 6,000 kronen in Vienna). The raising of salaries was contemplated, but instead a reduction is in prospect. Under the circumstances, it is impossible to live decently, or even less than decently. They cannot contemplate adding to their libraries or buying special journals, but are even forced to sell their books and scientific instruments in order to buy bread.

Those who could not endure the struggle long ago left this city of misery and luxury. Foreigners have received

them kindly, with an appreciation of their knowledge, and have provided them with maintenance corresponding to their rank. Others, however, are determined to share the fate of the unfortunate city, as long as they have strength to do so. However, the limit of strength has been reached, and many are preparing to leave Vienna. Many are invited to foreign countries; for instance, Strigowsky, court adviser, magister and representative of the historical auxiliary sciences, has received an invitation to the University of Dorpat, which he has accepted. Luckily, among members of the medical faculty, only those having no private practice, that is, those cultivating theoretical sciences, are so ill off. In the Reichsratstrasse, there is a restaurant in the Café Arcadia, which was established by Columbia University for the aid of the staff of Vienna University. Here the members of the faculty gather for their meals. Late ministers, bearers of brilliant names, world-famed representatives of science, meet in this cellar; and they are already fearing what might happen if Columbia University should withhold its support.

Still more terrible is the situation of ex-service professors, whose only income is the little pension they receive. This pension varies from 2,000 to 5,000 crowns a month, and one tramway ticket costs 200 kronen. So they get ten tram tickets for one month to live on. Among those unfortunates are Exner the philosopher; Tacharnak, formerly lecturer, later professor of urology, and the mathematicians Lang, Horn and Nertens. Most of these, instead of demanding loudly and begging openly, are withdrawing themselves in proud seclusion, and the state forgets its duty toward its best citizens. There are a few exceptions, practicing medicine; these are professors of medicine and professors of the technical university who are connected with industrial enterprises.

Medical Supervision of Domestic Servants

In several towns of Roumania, domestic servants are supplying the greatest percentage of hospital inmates in the venereal wards. This is due partly to the fact that they are not under medical supervision, while all other girls practicing prostitution are medically examined twice weekly, and partly to the fact that the rise in prices has caused hundreds of families to dismiss their female servants. These girls turn to prostitution. The district medical officer in Transylvania now makes frequent surprise visits in large towns after 10 p. m., and all women who cannot prove that they have an occupation are taken to the police medical officer for examination. By so doing, the authorities have found a vast number of ex-servant girls suffering from venereal diseases. As most rendezvous are held after 10 p. m., the chief medical officer of Transylvania has issued an order to the effect that in large towns no servant girl shall walk on the streets after 10 p. m. without a certificate issued by her employer giving the reason why she is out. Those found on the street without such certificates are taken to the police and medically examined, and discharged only if found healthy.

The Cholera in Roumania

Since the beginning of the tropical heat, that is, the second half of July, sporadic cases of cholera have occurred in Bucharest, Lassy and some villages near the frontier of Bessarabia. All the cases were bacteriologically examined and found to be Asiatic cholera cases. The sanitary authorities could trace all cases without exception as coming from Bessarabia. On this account, the zone between Bessarabia and old Roumania is strictly quarantined. The minister of public hygiene in Bucharest received an official report from Russia stating that the cholera cases occurring between August 1 and August 20 were numerically as follows: European Russia, 925 cases; Ukrainia, 2,780; Crimea, 482; Caucasus, 496; Siberia, 2,027, in the ports and railways 552; altogether, 5,646 cases. The central soviet has ordered compulsory anticholera vaccination, in order to check the spread of the epidemic.

PRAGUE

(From Our Regular Correspondent)

Sept. 1, 1922.

Child Welfare Exhibit

August 25, a child welfare exhibit was opened in Brno, the capital of the province of Moravia. It is the largest undertaking of this kind since the beginning of social welfare activities in the Czechoslovak republic. The exhibit is located in a three-story building, and occupies all the rooms. A part of it is located on the ground floor of a museum because it was impossible to find sufficient room in the main building for all the articles which are being exhibited. The credit for the organization of the exhibit is to be given to Dr. Dobroslav Krejci and Dr. Jaroslav Kallab, both university professors in Brno, and leaders of the child welfare movement in the province of Moravia. The purpose of the exhibit is to show what has been accomplished in the field of child welfare, to demonstrate the present needs, and to develop a concrete program for the future, on the basis of facts instead of more or less accurate guesses.

In order to get the necessary data, the Moravian child welfare association, in October of last year, took a census of all children needing aid, on account of poverty, physical or mental defects, or sickness. The census has been taken by schoolteachers, and it includes 375,000 children under 18 years of age. It was shown that 46,000 will require some kind of assistance on account of their social or physical condition. A large part of the exhibit is devoted to a demonstration of the facts which have been brought out by the census. There are maps showing the distribution of feebleminded children throughout Moravia; others showing the number of orphans, etc. At the same time, a survey of all kinds of institutions for children has been made, and the results are also presented in the exhibit. It was an easy matter to conclude what is lacking on the basis of these facts and to construct a concrete program for the future.

The ministry of health has set up an exhibit dealing with the importance and value of clean milk, and its relationship to the spread of disease. It is presenting also facts concerning school hygiene, and many American posters and pamphlets are being shown. There are special sections devoted to tuberculosis, alcoholism and venereal diseases, where posters of the American Social Hygiene Association and the temperance league can be seen. One hundred and fifty-four social and public health institutions are participating in the exhibit, which promises to become a milestone in the development of child welfare in the Czechoslovak republic.

Postgraduate Study

The ministry of health will organize postgraduate courses for physicians in the months of September and October, in cooperation with the medical faculty in Prague. The courses were started in the fall of 1919, and have been repeated every year since, because their great value to medical practitioners has been demonstrated. The courses are being given by university professors and their assistants at the different institutes of the Czech medical faculty. Special attention is devoted to the latest developments and discoveries in all branches of medical science. All medical specialties are represented on the list of courses, including lectures on public health and social medicine. Those who will attend the lectures on the last two topics will be given special certificates, which will qualify them for positions in the public health service. There is no fee charged for attendance at the lectures. Only physicians who have spent at least three years in private practice outside a hospital will be admitted

to the courses. A number of scholarships will be given by the ministry of health to those who would like to take the courses but cannot pay the living expenses in Prague.

Nationalization of Public Health Service

The law on nationalization of public health services in the Czechoslovak republic has been finally passed by parliament. It is an old project, which in principle has been once accepted already by the parliament but was postponed later for reasons of economy in the state budget. The smallest unit for the public health service will be now a district with from 3,000 to 6,000 inhabitants, which will have a part-time health officer. From ten to twelve such districts will be combined into a county, with a sanitary supervisor. The office of health officer in the small district existed before the project of this law, but the officers were so miserably paid that they could devote virtually no interest to the questions of public health. The law enumerates the new functions which the district health officers will have to perform. Besides measures against the spread of contagious diseases, participation in all social welfare activities is made compulsory for the district officers of health. All the communities which have more than 6,000 inhabitants have to appoint a local health officer, who must be given one assistant for every additional 6,000. The nationalization concerns only the salaries of the health officials. The material expenses connected with the public health campaign must be met from local funds. The positions of health officers are nationalized in the hope that, by this measure, the health officers will be made more independent of local influences, and that they will perform their functions more conscientiously than before. Besides that, the state will have a direct influence on the choice of the public health personnel even in the remotest districts of the republic. In this way, it will be also possible to fill the vacant positions in the poorest territories where no physican could make his living before. According to the provisions of the new law, physicians who have spent some time in such poor districts will be given preference when applying for a position in a better district.

BERLIN

(From Our Regular Correspondent)

Aug. 19, 1922.

Prussia's New Regulation in Regard to Midwives

The main feature of Prussia's new law with respect to midwives lies in the provision that in the future a special permit must be secured before a person can settle in any locality in Prussia for the purpose of practicing midwifery. The state plans to issue permits to only a limited number of midwives in a given district, basing the estimate of the needs on the average number of births occurring in the district. Midwives will, however, have the right to practice outside their own district. Besides giving advice to prospective mothers and taking charge during their confinement, midwives are expected to use their endeavors to promote the breast feeding of infants, and will also participate in public infant welfare. In the past, midwives often accepted employment of various kinds that tended to distract their attention from their regular line of work, for which reason the new law provides that before a midwife can accept any secondary employment she must obtain a special permit. A definite schedule of prices, varying with the circumstances of the client, has also been established. The midwife may claim an added compensation from the commune, provided her annual income, without neglect of duty on her part, falls below a certain minimum, varying at present between 6,000 and 12,000 marks, according to the cost of living. Special extra concessions may also be granted from time to time. The law further provides that midwives who voluntarily take out disability or old age insurance shall receive from the commune one half of the cost of the insurance. The general purpose of these provisions is to assure to midwives reasonably satisfactory living conditions. It is thought that with the improved outlook afforded by the new law more capable and better educated women will take up midwifery. In case a sufficient number of midwives do not volunteer for service in a given district, it becomes the duty of the authorities to employ district midwives and to guarantee them a minimum income. In case of permanent disability or after attaining the age of 65, such district midwives must be granted a regular allowance. Midwives are placed under the supervision of a government health officer, the *Kreisarzt*. In order that their qualifications may be controlled and improved, midwives are obliged, from time to time, to subject themselves to an examination to be given by the *Kreisarzt*, and must also attend a continuation course of several weeks in a school for midwifery. In every municipal and rural district a special body for the handling of affairs pertaining to midwives must be selected. These bodies will be composed of midwives chosen from the district, a representation of mothers, a representative of the communal authorities, the *Kreisarzt*, and two representatives of the public health insurance administration. They must be consulted by the authorities in regard to the formation of districts, the establishment of tariff schedules and in reference to any charges brought against midwives, as well as in various other important matters affecting their welfare. A similar controlling body, made up in like manner, will be chosen for each province, which will serve the same purpose within the province (decisions in regard to fees or complaints pertaining to provincial schools of midwifery). For the administration of the new system, including the district midwives, the state has made an annual appropriation of 25,000,000 marks.

The Vereinigung zur Förderung des deutschen Hebammenwesens, of which, besides certain experts, all the heads of the schools of midwifery and all university professors of obstetrics are members, adopted, at the congress held in Innsbruck last spring, the following resolution:

> The training of students of midwifery, which at present covers a period of only nine months, should be extended to two years, corresponding to the training course of nurses for patients and infants. The requirements for admission to the study of midwifery should be raised. Candidates should be required to pass a preliminary examination before a public health officer and an entrance examination before the head of the school of midwifery that they wish to enter. If, during the course of instruction, the student shows herself to be unfit for the work, she should be dismissed from the school. The review and continuation courses prescribed by the new law pertaining to midwives should be of three weeks' duration, and should furnish practical and theoretical instruction.

Marriages

HAROLD A. SCHIRRMAN, New Boston, Ohio, to Miss Agnes D. Doty of Mount Healthy, Ohio, August 9, at Cincinnati.

PROSSER ELWIN CLARK, Clarksburg, Ind., to Miss Lois Thorne of Greensburg, Ind., recently at Indianapolis.

ANDREW BROWNE EVANS, Washington, D. C., to Miss Mary Virginia Noel of Huntington, W. Va., July 25.

WILLIAM MICHAEL O'SHEA, Spokane, Wash., to Miss Violet Fowler of Fort Wayne, Ind., August 26.

HAROLD MONFORD COX, Brookston, Ind., to Miss Victorine Firsich of Indianapolis, recently.

JAMES B. KILE, Eddyville, Neb., to Miss Amelia C. Specht of Syracuse, Neb., July 12.

BENJAMIN C. RUSSUM, Omaha, to Miss Harriett Jarrett of Milford, Neb., recently.

LEO JOHN FULL to Miss Margaret A. Evans, both of Chicago, August 31.

MAURICE J. SHERMAN to Miss Rae Vebon, both of Chicago, July 19.

Deaths

Harold Clarence Ernst ✠ Boston, professor of bacteriology in the Medical School of Harvard University since 1895, died September 7, aged 66, following an operation performed at the Jordan Hospital, Plymouth, Mass. He was taken suddenly ill on the Boston-Plymouth boat, and on arrival of the boat was taken directly to the hospital.

Dr. Ernst was born in Cincinnati, July 31, 1856. He received the A.B. degree from Harvard University in 1876, the M.D. degree in 1880 and the A.M. degree in 1884. He became demonstrator in bacteriology in his alma mater in 1885; instructor in 1889, assistant professor in 1891 and professor and head of the department in 1895. Since 1896 he has been editor of the *Journal of Medical Research*. In 1896 Dr. Ernst wrote "Infectiousness of Milk"; in 1898 "Infection and Immunity"; and in 1902 "Animal Experimentation." In addition, he contributed widely to medical periodical literature. In 1901 he became secretary of the Association of American Pathologists and Bacteriologists and held the position continuously until his death except for 1909 when he served as president of the organization. He was also a Fellow and Councilor of the American Academy of Arts and Sciences and a member of the Association of American Physicians, the American Society of Naturalists, and for ten years president of the Boston Society of Medical Sciences. In the university Dr. Ernst aided conspicuously in the development of the medical department, arranging in 1906 for the dedication of the new buildings of the Harvard Medical School and editing a history of the school. He was also an important factor in developing laws regarding medical education in Massachusetts, appearing frequently before the state legislators. By his death the medical profession loses a scientist with high ideals and of notable executive ability.

Francis Eppes Shine ✠ Los Angeles; University of Virginia, Department of Medicine, Charlottesville, Va., 1895; at one time instructor and chief of clinic, Medical Department, Cornell University, New York, and on the staff of the New York Hospital; served as surgeon, Chinese Relief Expedition Hospital Ship *Maine*, 1900; formerly chief surgeon, El Paso and South Western Railroad; served in the M. O. R. C., with rank of major, during the World War; died, September 8, aged 51, at the American Hospital, Neuilly, France.

Carroll Dunham ✠ Irvington, N. Y.; New York Homeopathic Medical College, New York, 1800, the Bellevue Hospital Medical College, New York, 1887, and the Medical School of Harvard University, Boston, 1887; died, September 5, aged 64, at Woking, England, following a long illness.

Edward Stephen Willard, Watertown, N. Y.; Albany Medical College, Albany, N. Y., 1889; for twenty years city health officer; formerly president of the Jefferson County Medical Society; died, August 28, aged 69, from heart disease.

Arthur Clifford Jordan ✠ Pine Bluff, Ark.; Vanderbilt University Medical Department, Nashville, Tenn., 1886; formerly mayor of Pine Bluff; for several years member of the city council; died suddenly, August 29, aged 62, from heart disease.

Eugene Miller, Pasadena, Calif.; Detroit College of Medicine, Detroit, 1887; member of the Medical Society of the State of California; formerly city health officer; member of the school board; died, August 28, aged 71.

Joseph N. Cunningham, East Las Vegas, N. M.; Hahnemann Medical College and Hospital of Chicago, 1870; member of the New Mexico Medical Society; died in July, aged 75, from cerebral hemorrhage.

Walter Hopper Neilson ✠ Milwaukee; Rush Medical College, Chicago, 1881; associate professor of clinical medicine, Marquette University School of Medicine, Milwaukee; died, September 12, aged 65.

Posethia L. Sanders, Bremerton, Wash.; Kansas City Medical College, Kansas City, Mo., 1901; member of the Oklahoma State Medical Association; aged 44; was found dead in a field, August 25.

George Cook ✠ Concord, N. H.; Dartmouth Medical School, Hanover, N. H., 1869; formerly president of the New Hampshire Medical Society; died, September 1, aged 74, following a long illness.

✠ Indicates "Fellow" of the American Medical Association.

Frank Fisher ✠ Philadelphia; Jefferson Medical College, Philadelphia, 1875; for forty-three years on the staff of Wills Eye Hospital; died, September 5, aged 68, following a long illness.

Harry H. Dwyer, Lawrenceburg, Ind.; Pulte Medical College, Cincinnati, 1893; member of the Indiana State Medical Association; died, August 25, aged 54, from carcinoma of the stomach.

Charles Henry Fruth, Gibson, N. M.; Bennett Medical College, Chicago, 1907; member of the New Mexico Medical Society; died, July 18, aged 39, at Anganguco, Mexico, from peritonitis.

James Treloar Tresidder, Tipton, Ind.; St. Louis Hygienic College of Physicians and Surgeons, 1890; member of the Indiana State Medical Association; died, August 27, aged 58.

Joseph Henry Cunningham ✠ Cambridge, Mass.; Medical School of Harvard University, Boston, 1892; aged 55; died, August 28, in London, England, while touring Europe.

John McIntyre Osborn, Seattle; Rush Medical College, Chicago, 1908; member of the Washington State Medical Association; died, August 24, aged 49.

Franklin Joseph Drake ✠ Webster City, Iowa; Chicago Homeopathic Medical College, 1895; died in his office, August 29, aged 53, from cerebral hemorrhage.

Phillip Henry Matthei ✠ Chicago; Rush Medical College, Chicago, 1890; University of Göttingen, Germany, 1874; died, September 11, aged 88, from senility.

J. Arthur Hines, Van Wert, Ohio; Georgetown University School of Medicine, Washington, D. C., 1869; died, August 31, aged 79, from angina pectoris.

Francis Gustavus Hendrick, Opelika, Ala.; Medical Department, University of Louisville, 1894; aged 48; died recently at Hartboro from heart disease.

John Griswold, Helix, Ore. (licensed, Oregon, 1891); member of the Oregon State Medical Association; died, August 29, aged 72, from carcinoma.

John Harlan Martin ✠ Lead, S. D.; College of Physicians and Surgeons, Chicago, 1893; died, June 25, aged 57, at Fort Morgan, Colo., from uremia.

Fred H. Schols, Chicago; College of Medicine and Surgery (Physio-Medical), Chicago, 1910; died, September 12, aged 51, from heart disease.

Oliver S. Coffin, Alexandria, Ind.; Indiana Eclectic Medical College, Indianapolis, 1888; died suddenly, August 5, aged 81, from heart disease.

Isaac C. Boulson, Meeker, Okla.; Homeopathic Medical College of Missouri, St. Louis, 1884; died, August 26, aged 75, from pneumonia.

William T. Bailey, Hot Springs National Park, Ark.; Louisville Medical College, Louisville, Ky., 1884; died, August 6, aged 75.

Clifton Lewis Freas, Jermyn, Pa.; Jefferson Medical College, Philadelphia, 1891; died, August 12, aged 56, following a long illness.

Daniel W. Swiggart, Hamburg, Iowa; St. Louis Medical College, 1869; Civil War veteran; died, August 26, aged 91, from senility.

Charles M. Raynale, Birmingham, Mich.; Detroit Medical College, 1869; died, August 7, aged 76, from cerebral hemorrhage.

John D. Mullen, Latrobe, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; died suddenly, June 18, aged 52.

Eugene H. Blocker, Marshall, Texas; New Orleans School of Medicine, 1861; Civil War veteran; died recently, aged 85.

Arthur A. Reynolds, Scranton, Pa.; Baltimore Medical College, 1900; died, August 15, aged 46, from gastric ulcer.

Rose Margherita Lascola ✠ Buffalo; University of Buffalo Department of Medicine, 1920; died, June 11, aged 25.

James H. Stipp, Putnam, Ill.; Rush Medical College, Chicago, 1879; died, August 17, aged 70, from paresis.

James M. Pruett, Oakland, Calif.; Medical College of Ohio, Cincinnati, 1875; died, August 21, aged 72.

Herbert Wheeler, Los Angeles (licensed, years of practice); died, August 23, aged 71.

Death of Dr. L. B. Clarke.—In THE JOURNAL, September 9, it was stated that Dr. Lee Ben Clarke of Atlanta, Ga., died from paresis; this was a typographical error for "paralysis." Dr. Clarke, we are informed, died from cerebral hemorrhage.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE ADVERTISING ETHICS OF ANGOSTURA BITTERS

We reproduce on this page an advertisement that has been run in newspapers and drug journals by the J. W. Wuppermann Angostura Bitters Agency, Inc., of New York City. The advertisement was brought to our attention recently by a physician who sent it in, torn from a newspaper, with the comment: "This seems *too bad* to be true." In the latter part of July THE JOURNAL received a letter from the American agency for Siegert's Angostura Bitters stating that "in order to draw the attention of the medical profession to the medicinal value of Angostura Bitters" it had been using "the opinion of the late Dr. W. C. Wile, at one time vice-president of your association" and that it trusted there would be "no impropriety in our using the endorsement of Dr. Wile."

As it seemed an obvious waste of time to appeal to the exploiters of this nostrum on the basis of the wretched taste involved in the advertisement, the concern was told that the advertisement was altogether misleading in that it failed to give the public the facts, these facts being:

1. Dr. Wile was *fourth* vice-president of the American Medical Association *thirty-six years* ago and was nominated for this position by a committee of which he himself was a member.

2. Dr. Wile was for many years in the nostrum business himself and was the practical owner of several nostrum concerns at Danbury, Conn. (the Vass Chemical Company, which made "Thialion"; the Valley Chemical Company, which put out "Apetol"; the Argol Co., the Taro Food Company, which exploited "Taroena," etc.

3. Dr. Wile also owned a printing establishment which got out the *New England Medical Monthly*, a so-called medical journal of the commercial type that advertised the products that Dr. Wile's concerns manufactured and other nostrums of similar type.

4. Dr. Wile gave testimonials for many nostrums such as "Gardner's Syrup of Hypophosphites," "Pepto-Mangan," "Thialion" (his own product), "Arsenauro," "Uricedin," "Apetol" (his own product), "Hydrozone," "Hayden's Viburnum Compound," "Taroena" (his own product), "Buffalo Lithia Water," etc.

5. Dr. Wile's testimony for "Angostura Bitters" was given in the course of his testimony when he appeared in the rôle of "expert" for the Angostura concern in 1905.

6. Dr. Wile has been dead more than nine years.

None of these pertinent facts can be determined or inferred from the Angostura advertisement. Neither can the public be expected to know that the attitude of the medical profession toward such activities as those credited to Dr. Wile is entirely different today from that of thirty-six years ago when Dr. Wile was fourth vice-president of the American Medical Association.

Vice-President of American Medical Association Testifies to this Tonic's Value

Dr. W. C. Wile, formerly Vice President of the American Medical Association—testified, under oath, that he used Dr. Siegert's Angostura Bitters in his practice as a stomachic, an anti-spasmodic, in nervous disease and hysteria, and as a tonic, also as a stomach corrective in acute alcoholism after a debauch. Praise from such an authority is high praise indeed.

Don't confuse Angostura Bitters with any other tonic. Twenty-five International Expositions in every part of the world have awarded it the first prizes. In all history no other tonic has ever received a like number of awards or has been granted such distinctions from the leading governments and crowned heads of Europe. Kings and Emperors have publicly endorsed Dr. Siegert's Angostura Bitters.

"This bitters contains only the most beneficial vegetable ingredients and cannot harm the most delicate stomach. In fact, the combination of these aromatics and bitters assist nature in building up the system by increasing the appetite, promoting the digestion and assimilation of food and thereby enriching the blood.

Dr. Siegert's

Angostura Bitters

for Health and Strength"

This advertisement of Angostura Bitters is a good example of "patent medicine" advertising ethics. The reading public would naturally believe that the testimonial was a recent one by a man who had recently held office in the American Medical Association. The facts are Dr. W. C. Wile has been dead over nine years, gave the testimonial (when acting as an "expert" witness) seventeen years ago, was *fourth* vice-president of the A. M. A. thirty-six years ago and was, himself, an exploiter of nostrums.

The case in which Dr. Wile appeared as an expert for the Angostura people was a suit in equity, in which the exploiters of Siegert's Angostura Bitters seemed to have claimed that the public had been deceived into purchasing Angostura Bitters made by one Cornelius W. Abbott. In this case the Siegert concern submitted certain alleged "scientific opinions" of the "made in Germany" type. One of these was to the effect that Angostura Bitters was "entirely free from all . . . intoxicating ingredients." The judge before whom the case was tried held it as extremely unlikely that these alleged German experts ever existed and, referring to the claim that there was nothing intoxicating about Angostura Bitters, said:

"Shall the courts give by judicial decree a monopoly to certain persons who represent to the public certain bitters as containing nothing intoxicating when concededly they contain over 50 per cent. of water and over 40 per cent of alcohol and about 8 per cent. of we know not what?"

The judge, in summing up the case against the Siegert concern, also said that they had "been guilty of such fraudulent misrepresentations in advertising and selling their bitters that they are not entitled to the protection of a court of equity."

It is significant that some years previously (in 1890) in a similar equity case involving "Angostura Bitters" and tried before the New York Supreme Court, the judge said:

"Neither of litigants gave any evidence tending to show that the bitters prepared by them, respectively, possessed any medicinal qualities or had served any useful purpose except as an article of sale."

And the court concluded:

"We do not think courts of equity should be swift or vigilant to protect the manufacturers of a compound advertised and sold as a valuable medicine, which is not shown to contain a single medical ingredient or to possess a single merit claimed for it, as against other manufacturers producing and selling a like compound."

As a matter of contemporary interest, it should be said that Siegert's Angostura Bitters is purchasable on the open market today. According to the label, it is "Made from pure rum containing about 45 per cent. alcohol." The dose is given as half a tablespoonful. It is also recommended as an addition to ginger ale, grape juice, mince pies, ices, etc. Angostura Bitters is said to "consist of a mixture of certain bitter aromatic and carminative substances together with alcohol, added as a preservative and solvent and . . are altogether free from admixture with any dangerous or deleterious compound. . . ." If this represents the facts, it would be interesting to know just how this product has escaped the eagle eye of the Prohibition Commissioner. Most preparations on the market today containing even less than 45 per cent. alcohol have had to be "doped up" with drugs to make their use as beverages impossible.

Independence of Growth of Tumors.—The independence of growth of tumors is well illustrated by the fact that they often grow with rapidity in individuals who are losing weight. Huge benign tumors of fat cells may occur in persons who are otherwise almost without fat tissue.—Wolbach, *New Growths and Cancer*, Harvard University Press, 1922.

Correspondence

COLLABORATORS IN THE STANDARDIZATION OF BIOLOGIC STAINS

To the Editor:—From time to time, reports from the Committee on Standardization of Biological Stains have appeared, dealing with the investigations in progress. Many congratulations have been received by the chairman of the committee on the results accomplished; but as these accomplishments would have been impossible had it not been for the very hearty collaboration of a long list of investigators, credit for the work should be given to whom it belongs, by publishing the following list of committee members and collaborators. The committee members are: F. W. Mallory, Boston City Hospital, Boston; F. G. Novy, University of Michigan, Ann Arbor, Mich.; S. I. Kornhauser, University of Kentucky, Louisville, Ky., in charge of the work for the American Society of Zoologists; L. W. Sharp, College of Agriculture, Ithaca, N. Y., in charge of the work for the Botanical Society.

[The list of collaborators—eighty-five names—is too long to reproduce.—ED.]

The work so far accomplished by these collaborators includes an extensive study of American methylene blues, fuchsins, gentian violets and eosins for bacteriologic purposes, and a study of eosin, methylene blue, hematoxylin, orange G and safranin for various histologic purposes; while work is in progress at present on a number of other stains, including methylene green, Bordeaux red, brilliant green, brilliant cresyl blue, cresylecht violet, pyronin and acid fuchsin. The results accomplished are so promising that there is reason to believe that the most commonly used stains will have been standardized before the coming winter is over. It will then be possible to work out some method of certification of stains which come up to the standards.

None of this work would have been possible but for the cooperation of such a large number of investigators, who have responded to every call for assistance in a most gratifying way. It was not anticipated at the start that such a large number would be found to take part willingly in an investigation of this sort. The work, of course, has been entirely voluntary. The committee would like, whenever reporting on any stain, to give due credit to all of these collaborators; but as such a course is not practical, the best plan seems to take the present occasion to express appreciation for their assistance.

H. J. CONN, Washington, D. C.
Chairman, Committee on Standardization
of Stains, National Research Council.

SOCIALISTIC TENDENCY IN MEDICINE—FACTS VERSUS FEAR

To the Editor:—Has the critical sense of the medical profession sunk so low that it will accept a statement and argument on the topic of public medical service, based on such unsupported generalities as would certainly fail to convince if offered in the field of clinical medicine?

Are we prepared to condemn, with Dr. James A. Gardner, on the basis of his chairman's address published in THE JOURNAL, August 12, the efforts at prevention and control of venereal disease in which the leadership of such men as Dr. Morrow, formerly, and of his successors, Drs. Keyes, Walker, Stokes and many other eminent urologists has been an inspiration to the public and to the medical profession, and a guide to the policy of governmental and private health agencies?

We are told, apparently on the basis of Dr. Gardner's experience in Buffalo, as no reference is made to any other specific instances of abuse, that there are "many so-called reforms which in reality are little more than the outcome of emotional desires of restless faddists or of the ideas of extreme and radical discontents." And further it is suggested that these reforms have not followed the process of "patient investigation and study of causes unhampered by emotion and prejudice."

And yet what are the facts in Buffalo? Briefly, that at the request of the common council of Buffalo in 1910 a report based on an unusually careful study of the situation by the New York State Charities Aid Association recommended a program of hospital construction which so appealed to the good sense of the council that the decision was then reached to provide adequately for the then present and future needs of the sick.

Branch dispensaries were added to the plan, in no way differing in functions from the dispensaries operated in all the cities of the country in connection with municipal or private hospitals, except that they are logically and intentionally situated to meet the needs of the population and growth of the city, instead of being accidentally located to the great inconvenience of physicians and patients, as is commonly the way in most cities where there is no consistent plan of hospital development. These general dispensaries harbor under the same roof some of the appropriate district functions of the health department of the city, such as baby health clinics, tuberculosis diagnostic and treatment clinics, and venereal disease clinics, thus permitting an economy of cost to the public and a coordination of service which cannot be found in any other of the larger cities in the United States. Buffalo is still short of hospital beds for general medical and surgical patients, and lacks almost entirely facilities for the suitable care of chronic and convalescent patients. In only one respect has the program of hospital construction as proposed in 1910 exceeded the immediate present needs of the city, and that is for tuberculosis, in which the unforeseen and most hopeful reduction in the death rate in the last few years has required a revision in estimates of beds for this disease in 1922.

The hospital plan of Buffalo, including the free public dispensary system, is comprehensive and adequate, but not too elaborate or in any way superfluous. In fact, in one respect the hospital service of the city shows an important lack, namely, in the failure to provide for occupational therapy, that invaluable resource for shortening the period of hospital care by improving the morale of patients through interested employment.

A municipal hospital system which maintains an 88 per cent. use of its bed capacity for general medical and surgical patients throughout the year, as the Buffalo City Hospital did in 1921, deserves much credit for excellence of administration and for the confidence it has won among the medical profession and the public. Only Bellevue Hospital and Mount Sinai Hospital, of all the one hundred hospitals of New York City, equaled this record of performance.

Beyond this hospital and dispensary system serving the needs of diagnosis, prevention and treatment for the health department as well as for the department of hospitals and dispensaries, the only public agency dealing with the sick is the District Nursing Association, which is filling functions similar to those met by like organizations in scores of cities of the United States.

Good and adequate home nursing service for sickness, exclusively under physicians' orders, and for instruction in health protection, requires at least one nurse to 3,000 of the population (preferably one to 2,000). In Buffalo there is one

such nurse available for each 6,419 persons, while the ratio in some other cities is as follows:

Boston	1 to 2,691	Chicago	1 to 5,371
Cleveland	1 to 3,887	Baltimore	1 to 6,271
New York	1 to 4,011	St. Louis	1 to 6,496
Detroit	1 to 4,023	Philadelphia	1 to 7,180
Pittsburgh	1 to 4,231		

Two further complaints are registered against existing conditions by Dr. Gardner: that "reformers and uplifters have been allowed to invade unopposed the practice of medicine and surgery," and that "there is no official dividing line between those whom they [public dispensaries] care for as free patients and those who are refused because of their ability to pay."

Any one acquainted with the New York State Medical Practice Act will wonder why any such violations of the law have not been brought to the attention of the Erie County Medical Society by Dr. Gardner, or prosecution sought through legal means. The practice of medicine and surgery cannot be invaded by uplifters and reformers unless these are themselves licensed physicians. Can Dr. Gardner point to an instance in Buffalo in which medical services are rendered by public or private health or treatment agencies except as expressly authorized by law?

As to there being inadequate protection of the public and the medical profession against abuse, by those able to pay, of facilities intended for the indigent, this, too, is a matter which comes within the scope of the admirable dispensary law of the state of New York.

The Erie County Medical Society took some pains to solicit from 668 of its members specific instances of abuse of the privilege of free medical treatment in Buffalo. Eight instances were reported among patients who had made 192,213 original and return visits to the public medical and health clinics of the city in the year. If there is any such abuse, its existence or extension can best be checked by prompt prosecution under the law. There has been no evidence presented by the medical profession in Buffalo in recent years leading to the conviction of any one of violating the law in this regard.

The Bureau of Public Welfare of the city is responsible for the investigation of all applicants for free hospital and dispensary treatment.

The following quotation from a report on an investigation of the Department of Hospitals and Dispensaries, which I had the privilege of presenting to the Citizens' Committee and the Erie County Medical Society in April, 1922, may serve to reduce the fear, evidently in Dr. Gardner's mind, that wholesale pauperization is rampant in the dispensary system of Buffalo:

> The patient or a responsible member of the family signs a sworn statement of inability to pay. Six hundred and seven applicants out of a total of 6,361 were refused assistance on the ground that they could afford the services of a private physician or private hospital care. Frequently patients are referred for pay care through an explanation that free care means acceptance of charity. Advice to return to the family physician and explain to him the financial problem which originally sent the case to the Department of Public Welfare frequently results in an agreement satisfactory to all parties concerned.
>
> Applicants are urged to return in partial payments as much as they are able on their bills for hospital care as well as for other relief furnished; $15,124.45 was returned in this way to the department last year.
>
> It is obvious, however, that no piece of work involving as many difficulties and bringing up so many unsolved sociological problems as this work does can be met with fairness to all concerned, without open and ready cooperation on all sides, the strictest honesty, the use of sound investigative methods and a common desire on the part of all to obtain the best possible medical care for every case.
>
> Recommendations by physicians for free care in the dispensary diagnostic clinic are accepted without further investigation. This is doubtless because of the general belief that a physician has one of the most intimate relationships with families that is humanly possible. In the light of modern social investigation methods and especially in the changed relation of the physician to his patients in an urban community, this is not, of necessity, true. That physicians have been mistaken in their estimate of the financial ability of patients to pay is a frequent complaint of the social organizations consulted in this investigation. An intermittent illness of either brief or long periods which has resulted in the inability of the patient to carry on his usual work has led eventually to application for aid to some charitable organization. This, in turn, has meant the referring of the case for free medical attention as the first and most fundamental step in the financial rehabilitation of the patient. Four specific cases claimed to be private cases taken out of the physician's hands by the District Nursing Association were not known to the District Nursing Association at the time, but upon investigation were found to be cases receiving aid from some charitable organization and sent by them to a city clinic.
>
> It was obvious from conversations had with several physicians that they had no definite idea of a minimum budget upon which a family could maintain its health efficiency.
>
> Few foreigners in the Buffalo community who are laborers are now earning sufficient for a minimum basis of living on an American standard. This does not of necessity mean that none of these persons can pay for medical care. It does mean that their medical attention must be supplemented by city aid in order that it be adequate to prevent their falling into the group of the incapacitated at an unnecessarily early age.

Of the 800 members of the Erie County Medical Society, 305 referred 752 pay patients to the Buffalo City Hospital in 1921, while 272 physicians sent in 772 patients to the free diagnostic clinic during the past two years.

The names of many more physicians, and some of them the most active complainants against free service, appear on the daily blotter of the admissions to the urologic clinic for free treatment as sponsors of the patients, than there were members of the Erie County Medical Society who registered complaints of abuse of service by fraudulent applicants.

Quoting again from the report above referred to:

> If the estimate of 10 per cent. of any modern industrial city population infected with venereal diseases holds for Buffalo, we might expect as many as 50,000 patients needing medical care. If we accept the figure of 4.47 per cent. of the men from Buffalo found to be suffering from venereal disease among the second million drafted men, and that ratio is applied to the present entire population of the city, we have an estimate of 22,350 cases of venereal disease in the city. There were 2,100 individuals treated for venereal diseases at the free urologic clinic at Health Center No. 5, under the auspices of the department of health in 1921. If we consider that even 10 per cent. of these were able to pay, this could hardly account for the 95 per cent. reduction in income from such patients, which has been complained of by a considerable group of physicians. It is doubted if any such claim would stand careful analysis.
>
> The opinion expressed by physicians in Cincinnati in response to an inquiry addressed to them by a committee of the Erie County Medical Society is held to be as true for Buffalo, to the effect that such abuses as exist or are likely to develop in the provision of medical services for the indigent can be prevented and corrected by good social service. . . .
>
> It is believed that once the public recognizes the need for adequate social service and the physicians accept this new group of associates as trusted allies, the present roughness and mistakes due to misunderstanding and insufficient support will largely disappear.
>
> It must be a matter of common knowledge among physicians of Buffalo, as it is elsewhere, that the great reduction in the incidence and deaths from preventable diseases during the past twenty years has been the main factor in altering the character of medical practice and changing the sources of income.

Dr. Gardner complains of the lack of adequate individual clinical and laboratory diagnostic care for the patients accepted at the public urologic clinic. With the single exception that the open funnel instead of the single or twin glass cylinder method of administering arsphenamin was in use, it is my opinion that the methods, technic and thoroughness of care at the public urologic clinic at Buffalo will be found to compare favorably with the best hospital dispensary services for venereal diseases operating in our large cities, and to be far above the standards maintained in the practice of the great majority of physicians who deal with venereal diseases as a part of their general medical practice. It seems to me that Dr. Gardner has perhaps quite inadvertently done a serious injustice to a group of young physicians in his own city who are not only serving an important public need ably, but also maintaining high standards of personal service to a class of patients who are commonly made victims of medical quacks.

The continued pressure on our best medical schools to take in more and more of the well educated college academic graduates who wish to study medicine, the obvious leadership of the United States and England in the science and practice of preventive medicine, the rising prestige of whole-time health officers professionally trained to give skilled service, and the steadily falling death rate and sickness inci-

dence from the major preventable diseases with the resulting increase in life expectancy, all seem to me to be sufficient answers to Dr. Gardner's gloomy forebodings as to the future of medicine and the misery which will follow in the wake of those who believe improvement is always possible and health an attainable goal for all, however lacking they may be in worldly goods.

One is sometimes inclined to warn the graduate in medicine that it is not the responsibility of the indulgent and long suffering public to provide him with a steady flow of the sick to his private office, but that it is his own privilege to make himself so indispensable that the well and the sick will seek his services for diagnosis and sometimes for cure.

Dr. Gardner puts up a straw man to knock him down. He pictures a propaganda for the "socialization of the medical profession," whatever that may be. I suspect that he refers to the attempts of the public and private health agencies to make clear to society that the medical profession is capable of giving much broader service than the usual clientele of physicians has yet appreciated, and a service which the wholly necessary reticence of the private practitioner as an individual forbids his advertising on his own behalf. There is no project at present pushed or presented to the public by private or public health agencies which does not carry with it a broader and more active use of the best technical private professional services of which the medical profession is capable. Every movement in preventive medicine has brought more practice to physicians, but in the nature of the case it is not always the general practitioner or the specialist who treated the end-results of disease who is the one sought by the public to teach and apply the remedy of prevention, generally based on particularly accurate early diagnosis.

HAVEN EMERSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BRUCK FLOCCULATION TEST

To the Editor:—1. Is the Bruck flocculation test for the diagnosis of syphilis (*Deutsch. med. Wchnschr.* **48**: 825 (June 23) 1922) the same as, or similar to, the Kahn precipitation test (THE JOURNAL, Sept. 9, 1922, p. 870)? 2. Is this the same Bruck who collaborated with Wassermann and Neisser in the introduction of the complement-fixation test?

HENRY ROSENFELD, M.D., St. Louis.

ANSWER.—1. Bruck's flocculation test for the serodiagnosis of syphilis is briefly described thus: The antigen is an alcoholic extract of human heart muscle (beef or horse heart may be used), and is prepared by adding to a given amount of ground-up muscle five times the amount of 96 per cent. alcohol; this is let stand two weeks, during which time it is shaken several times daily; now the alcohol is filtered off, and to 50 c.c. of the extract is added slowly—about 0.5 c.c. every three seconds—25 c.c. of physiologic sodium chlorid solution. The mixture is shaken slowly; 25 c.c. more of physiologic sodium chlorid solution is added quickly, and the mixture shaken again; this gives a turbid solution of antigen potent for two months. On standing, the lipoids precipitate out and fall to the bottom, but that does no harm, for they are easily redissolved by shaking before use in the test. In making the test, to 0.2 c.c. of the patient's serum, which has been inactivated at 56 C. for thirty minutes, 0.8 c.c. of a 10 per cent. sodium chlorid solution and 0.2 c.c. of the diluted and turbid antigen are added. The mixture is shaken, and then centrifuged for twenty minutes. When the tubes are removed from the centrifuge, the fluid is perfectly clear, but there is a white film on top. Now the tube is shaken gently. When a serum is negative for syphilis, the top film will dissolve and form a diffuse turbidity in the fluid without precipitation or flocculation; when a serum is positive, the top film decomposes into extremely characteristic small flakes; if the flakes swim on top while the fluid remains perfectly clear, the serum is a double plus; if the serum is somewhat turbid with fine floccules throughout, the result is a single plus.

2. Yes.

MELTZER LAW OF CONTRARY INNERVATION

To the Editor:—Please give briefly the Meltzer law of contrary innervation. Kindly omit my name.

E. M. H., New York.

ANSWER.—IN THE JOURNAL (March 25, 1916) the law of contrary innervation was briefly stated thus by the author: "All living functions are continually controlled by two opposing forces: augmentation or action on the one hand, and inhibition on the other hand." "Thirty odd years ago," said Meltzer, in 1917, "I directed attention to the general principle that impulses inhibiting the action of antagonists must be an integral part of any kind of a movement in the animal body. For instance, simultaneously with each contraction of the extensors an inhibition of any form of contraction of the flexors, and vice versa, must take place; otherwise normal locomotion, for instance, would be practically impossible. I have demonstrated that this principle is an integral part of the respiratory mechanism. A few years before my general statement was made, we discovered that this arrangement is strikingly present in the mechanism of deglutition. The contractions of the lower parts of the esophagus and of the cardia become inhibited as soon as the upper end of the canal of deglutition begins to contract. Bayliss and Starling found that local stimulation of some segment of the intestines causes a contraction above and inhibition of the intestines below the stimulated part. They called it the law of the intestines. Evidently this is not merely the law of the intestines but a part of a general law. . . . Sherrington studied brilliantly this law, especially in the relations of the antagonistic muscles of the lower extremities. These relations exist there in a mutual way, and Sherrington termed them the reciprocal innervation. On account of the distinguished position of the investigator and the brilliancy of his work, physiologists are more familiar with this term. It is, however, evident that this is inappropriate to cover all phenomena manifestly belonging to this category. . . . I therefore designated all these relations by the more general term of the law of contrary innervation."

PREVALENCE OF GASTRIC CANCER

To the Editor:—1. Please inform me where I can find some information with regard to the prevalence of gastric cancer in the different races, especially the Balkans, India, China and Japan. 2. Is gastric cancer more common in some races than in others? 3. What is the death rate of gastric cancer in the United States? 4. What is the death rate in Europe? Please omit my name.

H. M., Detroit.

ANSWER.—1. References should be made to the following books and articles:

Hoffman, F. L.: The Mortality from Cancer Throughout the World, Newark, N. J., the Prudential Press, 1915.
Bunts, F. E.: Cancer of the Stomach, *Ohio State M. J.* **18**: 140 (Feb. 22) 1922.
The Statistical Evidence of Cancer Increase, editorial, THE JOURNAL, Dec. 22, 1917, p. 2112.
Wilcox, W. F.: On the Alleged Increase of Cancer, *J. Cancer Res.* **2**: 267 (July) 1917.
Race Distribution of Cancer, Budapest Letter, THE JOURNAL, Dec. 31, 1921, p. 2135.
Significant Cancer Statistics, THE JOURNAL, Nov. 8, 1919, p. 1462.
Strong, W. M.: Is Cancer Mortality Increasing? *J. Cancer Res.* **6**: 251 (July) 1921.
Mayo, C. H.: Carcinoma Developing on Gastric Ulcer, THE JOURNAL, July 16, 1920, p. 177.
Van Lier, E. B. H.: Gastric Cancer After 70, *Nederlandsch. Tijdschr. v. Geneesk* **2**: 837 (Aug. 13) 1921.
Mayo, W. J.: Cancer of Stomach, *Surg., Gynec. & Obst.* **26**: 367 (April) 1918; abstr., THE JOURNAL, April 20, 1918, p. 1191.
Incidence of Cancer, Berlin Letter, THE JOURNAL, Nov. 26, 1921, p. 1751.

2. Yes.

3 and 4. The mortality from cancer of the stomach and liver from 1908 to 1912, in the United States registration area, was 59.3 per hundred thousand population; 79.8 in Japan (1909-1910); 54 in Italy (1908-1912); 54.6 in Australia; 66.4 in Ireland; 126.9 in Holland; 141.3 in Switzerland (1906-1910); 72.7 in Uruguay; 2.71 in Ceylon (1911-1913), and 1.25 in Hongkong (1895-1904).

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

DISTRICT OF COLUMBIA: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

FLORIDA: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.

GEORGIA: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

IDAHO: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.

ILLINOIS: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

KANSAS: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.

MICHIGAN: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, Sept. 25-28. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

MONTANA: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.

OKLAHOMA: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

WEST VIRGINIA: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 9-11. Sec., Dr. J. D. Shingle, Cheyenne.

Wyoming June Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the oral and written examination held at Cheyenne, June 5-7, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Three candidates were licensed by reciprocity, and one candidate received an osteopath license by reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery	(1921)	82
Ohio Medical University	(1897)	75

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital of Chicago	(1910)	Texas
Tufts College Medical School	(1909)	New Hamp.
University of Nebraska	(1921)	Nebraska
Osteopath		Nebraska

New Mexico July Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 20 candidates were licensed on diploma at the meeting held at Santa Fe, July 10-11, 1922. The following colleges were represented:

PASSED			
College	Year Grad.		Number Licensed
Arkansas Industrial University	(1894)		1
University of Arkansas	(1909)		1
University of Colorado	(1922)		1
Atlanta College of Physicians and Surgeons	(1912)		1
University of Georgia	(1921)		1
Northwestern University	(1915)		1
State University of Iowa College of Medicine	(1913)		1
University of Louisville Medical Department	(1907)		1
Tulane University	(1910)		1
Johns Hopkins University	(1898)		1
American Medical College	(1877)		1
Barnes Medical College	(1906)		1
Washington University	(1907)		1
University of Buffalo	(1903)		1
University of Oregon	(1917)		1
Jefferson Medical College	(1904)		1
University of Nashville	(1903)	(1905)	2
Vanderbilt University		(1917)	1
Medical College of Virginia		(1918)	1

Book Notices

THE BREAKING POINT. By Mary Roberts Rinehart. Cloth. Price, $2 net. Pp. 356, with 1 illustration. New York: George H. Doran Company, 1922.

Mrs. Rinehart, wife of Dr. Stanley Rinehart, and herself a graduate nurse, should be eminently fitted to write a novel, such as this, with two physicians as important characters. The present novel is a mystery story turning on a case of amnesia following delirium tremens. Judson Clark, son of a multimillionaire, is involved with an actress, her brother and a lover, in an intrigue, during which the lover is killed. Clark is at the time drunk and on the verge of delirium tremens. He flees to the mountains and is taken in by some persons and sheltered. As a result of the illness and exposure, he loses his memory. He is then taken by an old general practitioner to an Eastern city where he is found, at the opening of the book, under the name of Dr. Livingstone, engaged in general practice. The elderly physician has introduced him to the community as a nephew. During the intervening period he has been educated at Johns Hopkins, has served in the war, and has practiced medicine for several years. The "throw-back" device is repeatedly employed in the novel, and serves excellently as a sustainer of interest. Moreover, during the interval, the search for the lost Judson Clark has died down. A chance observation by a newspaper man, of a meeting between Dr. Livingstone and the brother of the actress, revives the whole affair. Dr. Livingstone, anxious to marry but more anxious to clear up the mystery of his past, sets forth on a search for his antecedents. The shock of the discovery throws him back into his original Judson Clark personality. It is these various shocks that constitute the "breaking points" of the title, and that give the author opportunity for several brief discourses on psychology and psychanalysis. Strangely, in violation of known facts regarding both amnesia and delirium tremens, Judson Clark, following his second shock, takes up his alcoholism right where he left off, and though he has had no liquor in the intervening years, he wakes up quite drunk, on the edge of delirium, and desiring liquor much as a patient in that state would. Moreover, he eventually succeeds in reconciling his two personalities, retaining his medical knowledge, and resuming practice in the town in which the opening of the book finds him. He gives up voluntarily the great fortune which is his legally if he chooses to claim it. Of course, he marries the girl!

This plot, with all its intermingled love, adventure, life and observation, makes a first class story, quite definitely removed, however, from the bounds of probability and even of possibility. Mrs. Rinehart, with her opportunities for keeping scientifically within the bounds of reason, might well have done so. Her imagination and literary skill are assurance that any story she writes will be of good technical construction and worth reading.

LA ROENTGENTHÉRAPIE DES TUMEURS MALIGNES EN OTO-RHINO-LARYNGOLOGIE. Par Georges Portmann, Chef de Clinique Oto-Rhino-Laryngologique à la Faculte de Médecine de Bordeaux, et A.-P. Lachapèle, Assistant d'Electro-Radiologie à la Faculté de Médicine de Bordeaux. Paper. Pp. 106, with 7 illustrations. Paris: A. Maloine & Fils, 1922.

In a small, compact volume, the authors give a comprehensive account of the subject of roentgenotherapy of malignant tumors of the ear, nose and throat. An excellent historical review is first presented, from the discovery of the roentgen rays by Roentgen in 1896, to the report of Moore and Hautant at the French Congress of Otolaryngology in 1921. The principal authors and a number of abstracts of the work which appeared during this period are given, so that the reader gets a fairly complete idea of the whole subject in the space of fifteen or sixteen pages. The technic of irradiation and of the methods of obtaining the sections for diagnosis is described, and accurate instructions are given to avoid injury to the part which might favor the extension of the malignant growth. The next chapter deals with the clinical facts, and shows the results in the treatment by means of roentgen ray of malignant tumors of the tongue,

palate, parotid gland, larynx, maxillary sinus, frontal sinus, ethmoids, nasopharynx, neck, cheek, lip, ear and orbital regions, in an aggregate of eighty-four cases, including epithelioma, sarcoma, osteosarcoma and fibrosarcoma. The authors voice the opinion that while a great many cases are helped by radiotherapy, it must be admitted that many cases will recur despite all the therapy. Furthermore, it is impossible to state whether a definite cure has been obtained until several years have elapsed. Nevertheless, it is advised that the patient be given the benefit of the doubt and roentgenotherapy applied. The last chapter is devoted to a discussion of deep roentgenotherapy. Written with the usual clarity of French authors, the book may be easily read and understood. It contains a wealth of practical, useful information.

THE MECHANISM OF THE BRAIN AND THE FUNCTION OF THE FRONTAL LOBES. By Professor Leonardo Bianchi, Professor of Psychiatry and Neuropathology in the Royal University of Naples. Translated from the Italian by James H. MacDonald, M.B., Ch.B., F.R.F.P.S., MacKintosh Lecturer in Psychological Medicine, Glasgow University, with a Foreword by C. Lloyd Morgan, LL.D., D.Sc., F.R.S., Emeritus Professor in the University of Bristol. Cloth. Price, $5.50. Pp. 348, with illustrations. New York: William Wood & Co., 1922.

This is not, strictly speaking, a medical book, but rather a discussion of the function of the brain on a broad biologic basis. It is the crystallized product of more than forty years of untiring research and study on cerebral function in its broadest sense, and is the work of one who is a philosopher as well as a naturalist. While it is based mainly on personal investigations, it keeps constantly in touch with the works and views of others. Sherrington, Flechsig and Jacques Loeb are among those whose results are frequently correlated with the author's work. Beginning with embryology, the author takes us through the domain of brain physiology and then leads us on to psychology and human behavior. His philosophy is well expressed in the final sentences:

> Today, when psychology helps us to explain the phenomena of history, it is our duty to devote careful and weighty consideration to scholastic methods, the one aim and object of which should be to establish in each individual the sure foundations of a higher consciousness, embracing the larger conception of life, which is an aggregate of human values, associated, coordinated and acting in concert with one another. It behooves us to apply our minds assiduously to the solution of this problem, which so intimately affects the life of the nation.
>
> We must change our ways. Above all, we should take care, in every grade of school, to get rid of methods and systems (perhaps even personnel) that favor slipshod and slovenly learning, that are concerned solely about the *quantum* necessary for the examination, drying up the springs of noble sentiments, and paying heed only to the expediencies of the moment, methods which arrest or hinder the difficult but enthusiastic work of integration and development of the higher consciousness and the powers of attention, which on the contrary should be developed, encouraged and brought to a higher potential, for such is the source from which are derived the success of the individual and the fortune of the race.

HISTORY OF MEDICINE AND SURGERY AND PHYSICIANS AND SURGEONS OF CHICAGO. Endorsed by and Published Under the Supervision of the Council of the Chicago Medical Society. Cloth. Pp. 928, with illustrations. Chicago: The Biographical Publishing Corporation, 1922.

This volume was published, with the approval of the Chicago Medical Society, by a corporation composed of laymen. It was financed through subscriptions of $25 each from some 1,500 physicians, whose portraits and biographies constitute a little more than half the book. The volume is printed on good stock, but in the selection of type, and in the arrangement of pages, there is little artistry. The chief value of the work lies in the history of medicine and surgery in Chicago, which contains the biographies of many noted physicians, now dead, and brief accounts of the medical schools, hospitals and organizations of the city. The book is full of valuable information which should have been placed on record long ago. Unfortunately, the information is not presented in a literary form which will attract readers. The sketches are usually mere compilations of fact. They lack the literary quality and romantic interest which appears, for example, in the biographies of the well known Kelly and Burrage book. The portraits of the early physicians of Chicago and the information concerning them were gathered by Mr. F. du Souchet, under the guidance and with the cooperation of Dr. George H. Weaver. They must have cost a long and arduous search. Certainly they are worth while; and they will afford opportunity for character study, for reminiscences and for the stirring up of old memories.

Medicolegal

Liability of Hospital for Negligence of Physician

(Jenkins v. Charleston General Hospital & Training School (W. Va.) 110 S. E. R. 560)

The Supreme Court of Appeals of West Virginia says that the plaintiff, while in the employ of a fuel company, had his left arm broken. First aid was given him by a local physician, who put the arm in splints. Then the plaintiff, with his employer's certificate of admission, went to the defendant hospital, with which the fuel company had contracted for the medical and surgical treatment of its employees, in consideration of small monthly contributions by the latter. He remained there but a few hours. After registration and the making out of a chart, a roentgenologist was called in, at the expense of the hospital, and a roentgenogram of the arm was taken. A letter, dated the following day and received two days later by the plaintiff's father, stated that the roentgenogram revealed fracture of both the ulna and the radius in upper third, with very little displacement, and that new splints would not have to be applied. More than three months later, after several consultations with a local physician, the plaintiff went to a surgeon who found, by roentgen-ray examination, that the radial head had been dislocated and never replaced, and that it was necessary to open the wound and cut away portions of the bones, in an effort to obtain union and a straighter arm. Subsequently, this action to recover damages was brought, and the plaintiff obtained a judgment; which, however, is reversed, and the case remanded for a new trial, on the ground that the issue was submitted on an erroneous theory, and the verdict was manifestly contrary to the law and the evidence. The defenses were that the only physician who attended the patient was an independent contractor; that, if this defense failed, there was no negligence in the diagnosis or treatment; and that, if there was such negligence, recovery was barred by contributory negligence.

As is the law of the case, the court holds that a hospital conducted for private gain is liable to its patient for injuries sustained by him in consequence of incompetency or negligence of a physician treating him at its instance, under a contract binding it to furnish him proper treatment. A physician so employed is not an independent contractor. One bound to performance of a duty by contract cannot absolve himself from such obligation by devolution thereof on a stranger to it. More specifically, for two good reasons the defense of injury by an independent contractor could not be maintained. The roentgenologist was employed and paid by the defendant to perform work in discharge of its own contract and undertaking to diagnose and treat the injury. In the next place, the taking of the roentgenogram, whether properly or negligently done, was partial performance of the diagnosis, or rather one method of investigation, and not necessarily conclusive. The picture had to be read and interpreted and judgment passed on the conditions disclosed by it. From those conditions, it was necessary to say whether treatment was necessary, and that lay clearly beyond the province and employment of the roentgenologist.

Failure of a hospital, through its physicians and surgeons, to treat its contract patient, within the period of its employment, for part of a wound from which he is suffering, superinduced by lack of discovery of such part through negligence, the investigation not having extended to it at all, is actionable and constitutes ground of liability for the consequent detriment, in the absence of contributory negligence on the part of the patient. But if the patient, on being advised of the necessity of further diagnosis and treatment, within the period of such relation and within a reasonable time after the date of the wound, ignores it and neither returns to the hospital nor procures treatment elsewhere until after the trouble has become irremediable, his right of recovery is limited to such damages as accrued before his negligence occurred, if the prior and subsequent damages can be separated by the jury. A verdict for the plaintiff in such

case, found in a trial conducted on the theory of the defendant's unconditional liability for the entire damages sustained, should be set aside.

Identification of roentgenograms by the surgeon under whose general direction and for whose use they were made, and by whom they were used in his diagnosis of a wound, is sufficient for their admission in evidence, although the pictures were not taken or developed in his presence.

In the fact that at the date of the alleged negligence the staff of the hospital had been disrupted and depleted by enlistments in the military service of the country, there was no legal justification for any dereliction of duty of the defendant; but it bore strongly on the moral aspects of the case.

Liability of Employer for Fatal Injury Secondary to Inoculation

(Freedman v. Spicer Manufacturing Corporation (N. J.), 116 Atl. R. 427)

The Court of Errors and Appeals of New Jersey, in affirming a judgment for the petitioner, Nathan Freedman, says that the supreme court filed an opinion which stated the finding of the following facts: Harry Freedman, aged 21, was employed by the defendant company as a clerk. During the influenza epidemic in the fall of 1918, in an effort to check the spread of such disease, the company obtained and administered through its physician a vaccine to such of its employees as were willing to take the treatment, and also to the members of their families. Oct. 23, 1918, Harry Freedman was invited, recommended and induced by the company to accept such inoculation, and was inoculated at the company's plant along with the other men in his department. On his returning to his desk after the inoculation, and as a result of the inoculation, he fainted and fell to the floor. As a result of the fall, he fractured his skull, and his death ensued on the following day, the result of the accident. The injury was caused by an accident arising out of and in the course of the employment.

The supreme court thought that this finding justified the judgment entered in favor of the petitioner, and affirmed it, with costs. The court of errors and appeals merely adds that the judgment under review herein should be affirmed, for the reasons expressed in the opinion of the supreme court.

Treatment of "Persons" Understood—"Adjusting" Implies Diagnosis—"Mode of" Equivalent to "System of"

(People v. Cochran (Calif.), 205 Pac. R. 473)

The District Court of Appeal of California, Second District, Division 2, in affirming a judgment of conviction of the defendant, says that the information charged that he "did wilfully, unlawfully, and feloniously practice, attempt to practice, and advertise and hold himself out as practicing, a system and mode of treating the sick and afflicted in the state of California, without then and there having a valid unrevoked certificate authorizing him to practice a system or mode of treating the sick and afflicted in the state of California, from the state board of medical examiners." The principal contention of the defendant was that the information did not state facts sufficient to constitute a public offense. The court's attention was called to the fact that, in addition to the medical practice act (Statutes of 1913), there is a statute in force in the state of California regulating the practice of veterinary surgeons. But the court thinks that no person of common understanding could fail to know, from a reading of the information, that it charged the defendant with having treated sick and afflicted persons in violation of the medical practice act rather than having violated the statute concerning the practice of veterinary surgeons. The information was fully sufficient to charge a public offense.

The defendant asked the court to declare a legal distinction between "adjusting" and "treating" persons suffering from disease or discomfort. The court was told that the defendant declared that he did not diagnose any case, and so informed the patients who came to him; that he only "adjusted the vertebra" in order that nature might correct the difficulty. It was urged that, unless a diagnosis is made, it cannot be said that a physician "treats" a patient. However, the proposition here argued is not an open question in California. In *People* v. *Jordan*, 172 Cal. 391, 156 Pac. 451, the supreme court of the state announced the law to be that "it is impossible to disassociate diagnosis from the practice of the art of healing by any physical, medical, mechanical, hygienic or surgical means." It was not contended that the adjustments given by the defendant did not involve physical means.

Another contention was that the information was defective in not alleging that the defendant practiced a "system," whereas the offense charged to have been committed by the defendant was "practicing a mode of treating the sick," etc. But the court finds it difficult to understand how a criticism on this ground could be directed against the information in this case; for the charge was clearly of "practicing a system and mode of treating the sick and afflicted." Besides, the opinion in *Ex parte Greenall*, 153 Cal. 767, 96 Pac. 804, recognizes the word "mode" as being the equivalent of "system."

Again, the information in this case was attacked because it did not specify whether or not the defendant was charged with having used drugs. Under the Act of 1913, applicable here, such an allegation is unnecessary to state an offense under its provisions. It prohibits practicing or attempting to practice "any system," etc.

Expert Testifying to Statements Made to Him

(Estes et al. v. Babcock et al. (Wash.), 205 Pac. R. 12)

The Supreme Court of Washington sees no error in the fact that a physician called as an expert witness in this personal injury case was permitted to testify as to statements made to him by the injured plaintiff regarding her condition, on which he based his opinion. The court says that such evidence is admissible for the purpose of affording the jury some means of determining the weight to be given to the opinion of the physician, but not as evidence tending to prove the actual condition of the patient at the time. This, the court thinks, is the general rule.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.
American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.
American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.
American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.
American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.
Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.
Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.
Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.
Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.
Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 16-18. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.
Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.
Missouri Valley Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.
Nevada State Medical Association, Reno, Oct. 4-7. Dr. Horace J. Brown, Goldfield, Secretary.
New England Surgical Society, Burlington, Vt., Sept. 22-23. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.
Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.
Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.
Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Review of Tuberculosis, Baltimore

August, 1922, **6**, No. 6

*Treatment of Diabetes and Tuberculosis. H. R. M. Landis and E. H. Funk, Philadelphia.—p. 429.
*Studies in Chemotherapy of Bacterial Infections. III. Experimental Tuberculous Pleuritis as Aid to Chemotherapeutic Investigations in Tuberculosis. J. A. Kolmer and I. Ogawa, Philadelphia.—p. 437.
*Brief for Investment in Adequate Prevention of Tuberculosis. H. Emerson, New York.—p. 454.
Criticism of Recent Interpretations of Annular Shadows in Lung Roentgenograms. M. P. Burnham and P. K. Brown, San Francisco.—p. 469.
Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. J. A. Honeij, Boston.—p. 477.
Further Studies of Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. J. N. Amberson, Jr., New York.—p. 480.
*Report of Twenty Years' Work in Treatment of Tuberculosis at New Mexico Cottage Sanatorium: With Estimation of Part Played by Climate. E. S. Bullock and F. T. Fahlen, Silver City, N. M.—p. 484.

Treatment of Diabetes and Tuberculosis.—Landis and Funk believe that these two diseases are more commonly associated than is generally considered, and that in practically all cases diabetes is the initial disorder and the active tuberculosis a subsequent development. The diabetes probably determines in most instances the development of tuberculosis in the person in whom both are found to be present. The authors are quite convinced that in that particular group of tuberculous patients in whom diabetes is present, weight increases have less significance, as far as the improvement of the tuberculous condition is concerned, than in others, and this is in keeping with knowledge of the prognosis of diabetes. The undernourished diabetic keeps well longer than one who tends rapidly to put on weight. The tuberculosis will improve even though there is no considerable gain in weight, if the diabetes remains under control at a given weight. The important point in regard to the fats is to know how to adust the diet so that a maximum of fat may be given without disturbing the fat metabolism, with the resulting formation of ketogenic substances and acidosis. The ratio between fatty acids and glucose should not exceed 1.5 to 1. It is of first importance, therefore, to know that a given quantity of carbohydrate yields in the body 100 per cent. glucose and no fatty acid, proteins yields 58 per cent. glucose and 46 per cent. fatty acid, and fat yields 10 per cent. glucose and 90 per cent. fatty acid. With this information it is possible to calculate the diet, so that the ratio of fatty acids to glucose of 1.5 to 1 is not exceeded.

Chemotherapy of Bacterial Infections.—For chemotherapeutic investigations in bacterial infections, localized are better than generalized infections for the study of medicaments possessing but a slight margin between the toxic and curative doses. For chemotherapeutic investigations in tuberculosis, it is recommended by Kolmer and Ogawa that experimental tuberculous pleuritis and pneumonitis be employed as a lesion offering more hope for successful therapy than generalized infections. For the production of experimental tuberculous pleuritis, the animal should be of a species possessing some natural immunity, in order to reduce invasiveness of the bacilli and the development of lesions in distant organs; the cultures should be of moderate rather than high virulence. Experiments with guinea-pigs, rabbits, dogs and white rats, employing human and bovine strains of tubercle bacilli, have shown that the best lesions, largely confined to the side of injection, were produced in rats by bovine bacilli (Strain H) and in dogs by human bacilli.

Prevention of Tuberculosis.—It is believed by Emerson that if three population groups of approximately 200,000 each, one in New York City, one in a city of the second class in New York State, and one including a smaller city and a large rural or county area in New York State, were so served by the judicious investment of $3 per capita for the prevention and treatment of tuberculosis among them, in addition to the expenditures now made by these various communities for purposes directly or remotely assisting in the control and care of tuberculosis, as to reduce the death rate per hundred thousand per annum in five years by 50 per cent., the effect on the district selected, on the nation, and on the opinion and wealth of the world, as a whole, would be such as to convince all nations and communities of their obligation to make at least the same effort and probably to oust tuberculosis from its position of the greatest single destroyer of life and property today.

Climate in Treatment of Tuberculosis.—The statistical nature of Bullock and Fahlen's paper does not permit making a brief abstract—but the subject of treatment of pulmonary tuberculosis is discussed in all its phases on the basis of analysis of results in about 1,500 cases and with reference to climate the authors are firm in their belief that the "sicker they are, the more they need what our climate has to give them."

Archives of Internal Medicine, Chicago

August, 1922, **30**, 2

*Absorption of Digitalis in Man. C. Eggleston and J. Wyckoff, New York.—p. 133.
*Delayed Conduction Through Right and Left Branches of Atrioventricular Bundle. H. M. Korns, Cleveland.—p. 158.
*Studies on Physiology of Liver. III. Effect of Administration of Glucose in Condition Following Total Extirpation of Liver. F. C. Mann and T. B. Magath, Rochester, Minn.—p. 171.
*Studies of Cerebrospinal Fluid and Blood of Syphilitic and Normal Persons; with Special Reference to Immunity Reactions and Colloidal Gold Test on Original and Ultrafiltered Fluids and Serums. C. E. Nixon and K. Naito, Minneapolis.—p. 182.
*Efficient and Practical Method for Counting of Red Blood Cells. R. R. Waugh, Montreal.—p. 216.
Mechanism of Hay-Fever. F. M. Rackemann, Boston.—p. 221.
*Factors in Leukocytosis. D. K. Bacon, St. Paul; F. O. Novy and H. H. Eppler, Detroit.—p. 229.
Blood Pressure and Pulse Rate Reactions. T. Addis, San Francisco.—p. 240.

Absorption of Digitalis in Man.—The absorption of high grade specimens of tincture of digitalis from the digestive tract of man, Eggleston and Wyckoff state, is almost invariably sufficiently uniform to permit the establishment of a satisfactory working average total dose in terms of the cat unit of activity per pound of the patient's body weight. Specimens of tincture of average biologic activity are occasionally encountered which are therapeutically unsatisfactory on account of poor absorption from the alimentary canal. Tincture of digitalis shows definite evidences of action on the heart in from two to four hours after oral administration to man. Poorly absorbed tinctures may require more than five hours for the development of demonstrable cardiac action. A method of preparing and standardizing a purified tincture of digitalis is described. The purified tincture is shown to be absorbed from the human digestive tract more rapidly and more nearly uniformly than are different specimens of official tincture of average biologic activity. Considerable variation in the capacity of different individuals to absorb digitalis is shown to exist. Evidence is offered to show that digitalis causes nausea or vomiting in man by reflexes arising in the heart as a result of its intoxication. An average total dose of the purified tincture for oral administration to man is established on the basis of its cat unit of activity and the patient's body weight.

Delayed Conduction Through Atrioventricular Bundle.—It is suggested by Korns that the older routine methods which have been depended on to show the normal and abnormal anatomy of the Purkinje system be subjected to rigid criticism. Recent work has made it clear that these methods have been inadequate. Recent experimental work on the subject of delayed branch conduction is reviewed. A case is reported in which electrocardiograms parallel in a striking fashion those seen in experiments. Attention is directed to eight similar cases in the literature. If the refractory period of the right or left branch of the atrioventricular bundle is longer than the refractory period of the A-V node, conduction through that branch is delayed provided the rate of impulse discharge from the ventricular pacemaker be sufficiently high. Digitalis may directly lengthen the refractory periods of the individual branches to a degree sufficient to produce delay in branch conduction.

Blood Sugar Decreased Following Hepatectomy.—The experimental work done by Mann and Magath shows that the total removal of the liver is followed by a definite and progressive decrease in blood sugar. Coordinate with this decreasing blood sugar, a characteristic group of symptoms develops. If glucose in suitable amounts is injected intravenously into an animal exhibiting these characteristic symptoms, it is immediately restored to normal. If glucose is administered so that the blood sugar does not decrease, the symptoms do not develop.

Colloidal Gold Test Reviewed.—It is evident from experiments made by Nixon and Naito that two factors are concerned in the colloidal gold reaction. In fluids giving a curve there is present a precipitating substance; there may also be present a protective substance which modifies the action of this substance. Both precipitating and protecting substances are present in pathologic cerebrospinal fluid. Curves in Zones I, II and III are due to varying amounts and proportions of the precipitating and protecting substances. Albumin and globulin may possess both precipitating and protecting power. Ultrafiltrates of syphilitic and nonsyphilitic serums give curves that are more or less similar, but there tends to be a greater difference between the zones of reduction of the original and filtered serum in syphilitic than in normal cases. The protecting substance is decreased by ultrafiltration to a greater degree than the precipitating substance. Changes in the state of the protein modified precipitating and protecting powers. The salt solution used in the colloidal gold test partially neutralizes the protective action.

Counting Red Blood Cells.—Employing the same principle of comparing the elements to be counted with those of a titered standard suspension, as in Dreyer's method, a procedure has been devised by Waugh which has distinct advantages for the enumeration of erythrocytes and offers a method which is rapid, accurate and clinically practicable.

Nature of Leukocytosis.—A picture is drawn by Bacon, Novy and Eppler which portrays the leukocytes and fever (if one wishes to consider that an immune reaction) as a second line of defense against infection, responding only after invasion due to a let down of primary humoral immunity, if such it be, and then responding to nonspecific stimuli which arise from quantitative alteration in the bodily metabolism rather than directly from the infecting organisms; the same stimuli which on a smaller scale produce variations of normal values in the absence of infection.

Arkansas Medical Society Journal, Little Rock

August, 1922, **19**, No. 3

Permanent Cure for Trigeminal Neuralgia. W. T. Coughlin, St. Louis.—p. 45.
Darwinian Theory. T. Douglass, Ozark.—p. 48.
Auricular Fibrillation with Paroxysmal Tachycardia. S. T. Rucker, Memphis, Tenn.—p. 55.

California State Journal of Medicine, San Francisco

August, 1922, **20**, No. 8

*Nondysenteric Amebiasis. A. C. Reed, San Francisco.—p. 253.
*Plan for Intensive Treatment of Congenital Syphilis. H. Schussler, San Francisco.—p. 257.
Diphtheria Problem. W. W. Roblee, Riverside.—p. 260.
*Is Meltzer-Lyon Technic for Diagnosis and Treatment of Gallbladder Disease an Asset or a Liability? W. C. Alvarez, San Francisco.—p. 262.
Lethargic Encephalitis. N. T. McArthur, Imola.—p. 263.
Anatomic and Embryologic Study of Perineum. M. B. Wesson, San Francisco.—p. 269.
Early Hospital History in United States. J. B. Cutter, Watsonville.—p. 272.
Curability of Syphilis. V. G. Vecki, San Francisco.—p. 274.
Hay-Fever: Its Cure by Alcoholic Injection. D. H. Trowbridge, Fresno.—p. 275.
Effect of Massage, Heat and Exercise on Local Circulation. A. W. Hewlett, San Francisco.—p. 276.

Nondysenteric Amebiasis.—Reed and some of his associates examined the stools in twenty cases of Type II arthritis. Of these only one showed *Endameba histolytica*. This patient was put on intensive treatment for amebiasis with the result or accompaniment that his arthritis become distinctly worse and remained worse. Cysts had not reappeared in his stools within two months after stopping treatment but physiotherapy had to be resumed to relieve his pain. During the same period Reed saw seven other cases of Type II arthritis. One only of these harbored *E. histolytica*. One of these patients who gave no evidence of amebiasis was put on moderately severe amebic treatment none the less and received immediate improvement which has lasted for some two months. Reed believes the explanation lies in the free elimination secured by the treatment and is along the line frequently noted of improvement following the use of colon irrigations and a diet designed to decrease putrefactive changes in the bowel. A second case was infected with an ameba which Kofoid diagnosed as Councilmania. The amebiasis was cured by specific emetin treatment and the clinical improvement was marked and has lasted some three months. Such a so-called therapeutic test as this seems to Reed worthless, however, as showing any relations between ameba and arthritis, for the reason stated. Immediate improvement in the symptoms of arthritis after treatment with emetin preparations would in no sense argue for an amebic cause for the arthritis, but rather for immediate removal or subsidence of some focus of toxic absorption in the intestine. This is in line with mature clinical judgment. Settlement of the present question of the causation relationship of the ameba will depend not on therapeutic experimentation but on demonstration of definite association histologically between ameba and bone lesion, and the experimental production specifically of such lesions.

Intensive Treatment of Congenital Syphilis.—Schussler describes a plan of treatment for congenital syphilis which is in use at the Children's Clinic of Stanford University Medical School. Three intravenous injections of neo-arsphenamin are given at forty-eight hour intervals. Three mercurial inunctions are given every week for eight weeks. Three more neo-arsphenamin injections are given at forty-eight hour intervals. Mercurial inunctions are given as above for four weeks more. A rest period of four weeks is permitted, at the end of which a Wassermann test is done. This schedule covers a period of about four months. It is repeated regularly until the Wassermann test is negative, after which one more course is given with step three omitted. Then all treatment is stopped, and the Wassermann is repeated every six months for three years. If all are negative, and no clinical evidence of the disease has appeared, the patient is considered as probably cured. Sodium iodid is given almost continuously to all patients over 1 year old, being omitted and a tonic of iron and cod liver oil substituted during the rest periods. If the patient has an active or open lesion, the initial series of neo-arsphenamin is increased to six injections on alternate days, the rest of the course being as usual. This first course is considered the most important, and it should be made intensive. In weak athreptic infants, the first arsenical series may be preceded by a week or two of mercury rubs. Spinal puncture is done (1) if the central nervous system is clinically involved; (2) if the Wassermann reaction is very resistant to treatment; (3) in cases with mental deficiency, and (4) at the time of the first negative blood Wassermann, if involvement of the nervous system has ever been suspected. Intraspinal treatment in children is rarely used and is not recommended for general practice. The dosage of neo-arsphenamin varies with the age, weight, arsenical tolerance, and general physical condition of the patient. It is much higher, in proportion, than the doses commonly used in adults.

Value of Meltzer-Lyon Method in Gallbladder Disease.—It seems pretty clear to Alvarez that as a diagnostic procedure the method has hardly a leg to stand on. Therapeutically, there is only one thing to do with a chronically diseased gallbladder if a cure is desired, and that is to take it out. Individual cases will always have to be treated individually, however, and in the present state of knowledge it is often hard to decide when a patient should be urged to go to the surgeon, and when she should be advised to let well enough alone. The method is worth trying on certain people who for one reason or another cannot submit to operation, or who have had unsuccessful or partly successful operations. Furthermore, it should be tried on every rebellious case of catarrhal jaundice. The method may occa-

sionally be helpful in establishing the presence of severe cholecystitis, but Alvarez would never think of relying on it for the diagnosis of early or obscure forms of the disease.

Canadian Medical Association Journal, Montreal

August, 1922, **12**, No. 8

Hospitalization Problems—Hospital Standardization. M. T. MacEachern, Vancouver.—p. 520.
Evolution of Surgery as I Have Seen It in My Own Practice. A. Groves, Fergus.—p. 527.
Typhoid Fever in Infancy and Childhood. H. S. Whiting, Montreal.—p. 531.
*Effects of Ultraviolet Rays on Calcium and Inorganic Phosphate Content of Blood Serum of Rachitic Infants. F. F. Tisdall, Toronto.—p. 536.
*Starvation Treatment of Epilepsy. A. Goldbloom, Montreal.—p. 539.
Postoperative Complications of Respiratory Tract. H. R. Decker, Pittsburgh.—p. 541.
Block and Local Anesthesia. H. O. Howitt.—p. 549.
Statistical Study of Fermentative Diarrhea, Infectious Diarrhea, Acute Intestinal Intoxication and Decomposition. M. A. Cox, Toronto.—p. 554.
Fear—Harmful Emotion: How May We Eliminate It from Surgical Patient's Mind? D. Guthrie, Sayre, Pa.—p. 559.
Value of Wassermann Test. F. T. Cadham, Winnipeg.—p. 563.
Effects of General Anesthetics on Liver. C. La Rocque, Montreal.—p. 566.
*Case of Bromid Eruption in Nursing Infant. F. H. Boone, Toronto.—p. 570.

Effect of Ultraviolet Rays on Blood Calcium in Rickets.—Tisdall reports that exposure of rachitic infants to ultraviolet rays from a mercury vapor quartz lamp, for very short periods, caused a marked increase in both the calcium and inorganic phosphate content of the blood serum. The increase in the calcium and inorganc phosphate content of the serum was followed by clinical and roentgenographic evidences of healing. No increase in the serum calcium and inorganic phosphate was obtained by prolonged exposure to the rays from an ordinary 500 watt incandescent lamp. In all cases the whole body was uncovered and exposed to the rays of the mercury vapor quartz lamp. The distance of the lamp from the body was 60 cm. and the duration of the exposure generally fifteen minutes.

Starvation Treatment of Epilepsy.—Experience has convinced Goldbloom that the starvation treatment of epilepsy is effective only while it is continued and while the patient remains in bed, but it has no enduring qualities. The explanation of the improvement is first that the patient is kept in bed and secondly that the fermentative and putrefactive intestinal processes, so often the exciting causes of convulsions even in a nonepileptic child, are reduced for the time being to a minimum. Hence reliance must still be placed on one or other of the sedatives, such as bromids or luminal or both for a greater degree of relief.

Bromid Eruption in Nursing Infant.—Boone reports the case of a nursing baby, 6 months of age, receiving sufficient bromids through the mother's milk to produce marked cutaneous signs of bromid poisoning. The mother was receiving 45 grains of sodium bromid per day, over a period of seven and a half weeks. Not until four and a half weeks after bromids were started did the first symptoms of intolerance appear in the baby. The mother never developed any eruption. When the tonic was discontinued, the baby's condition showed a steady and gradual improvement.

Colorado Medicine, Denver

August, 1922, **19**, No. 8

Brill's Psycho-analysis. L. V. Tepley, Denver.—p. 159.
Plea for Earlier Administration of Artificial Pneumothorax. A. Minnig, Denver.—p. 162.
Plea for Conservative Surgery in Tuberculous. M. D. Brown, Denver.—p. 165.
Classifications in Tuberculosis. M. I. Marshak, Edgewater.—p. 166.
Some Advantages of Local Anesthesia in Abdominal Surgery. L. E. Likes, Lamar.—p. 168.

Illinois Medical Journal, Oak Park

August, 1922, **42**, No. 2

*Tumors of Breast from Standpoint of General Practitioner and General Surgeon. A. D. Bevan, Chicago.—p. 85.
Why Is a Doctor? J. J. O'Reilly, Brooklyn.—p. 93.
Flies on Chariot Wheel. G. F. Lydston, Chicago.—p. 97.
System of Applying Local Anesthesia. R. E. Farr, Minneapolis.—p. 101.
Combined Intranasal and Extranasal Operation for Cure of Dacryocystitis, Freeport.—p. 104.
Necessity for Narcotic Drug Investigation. L. D. Volk, New York.—p. 111.
Grown Together Twins and Last Illness of Blazek Twins. B. H. Breakstone, Chicago.—p. 123.
Psychoanalysis of So-Called Borderline Pulmonary Tuberculosis. H. I. Leviton, Los Angeles.—p. 130.
Diagnostic Surveys by Diagnostic Commissions for Asylum Populations. C. A. L. Reed, Cincinnati.—p. 132.
Roentgen-Ray Diagnosis of Peptic Ulcer. H. B. Magee, Peoria.—p. 136.
Diagnosis and Treatment of Eczema. B. B. Beeson, Chicago.—p. 140.
Vitamins. C. B. Johnson, Champaign.—p. 144.

Tumors of Breast.—Speaking of postoperative management of these cases, Bevan says that the roentgen ray is of very much more value in the after-treatment of breast amputations for carcinoma than radium. It should be employed in every case, and by an expert. Time and again he has seen gross recurrent carcinomatous lesions, the size of a bean or the size of a cherry, disappear under roentgen-ray treatment. It seems perfectly clear that if these gross, visible, tangible lesions can be made to disappear under the roentgen ray that the microscopic group of cells from which they sprang could be very much easier destroyed if the roentgen ray is used immediately after radical operation. This should be advised in every case. There comes a time, of course, in hopeless cases when the roentgen ray evidently is of no value, when it holds out no prospect of benefit and when some other agent, such as morphin, had better be used for the purpose of making the patient as comfortable physically and mentally as possible without adding any possible injury from roentgen-ray treatment.

Iowa State Medical Society Journal, Des Moines

August, 1922, **12**, No. 8

Digitalis in Cardiac Disease. H. A. Christian, Boston.—p. 307.
*Effect of Occlusion of Coronary Arteries on Heart's Action and Its Relationship to Angina Pectoris. W. T. Longcope, New York.—p. 314.
Syphilitic Aortitis, Cause of Sudden Death. L. R. Woodward, Mason City.—p. 319.
Causes of Failure of Operations for Chronic Appendicitis. C. J. Rowan, Iowa City.—p. 322.
Vincent's Angina as Seen in Civil Practice. J. E. Rock, Davenport.—p. 326.
Hospital and Laboratory as Aid in Diagnosis and Treatment of Diabetics. E. L. Rohlf, Waterloo.—p. 329.
Mental Measurement in Relation to Medicine. R. H. Sylvester, Des Moines.—p. 330.

Effect of Occlusion of Coronaries on Heart Action.—Longcope states that sudden stoppage of the circulation in one or the other coronary artery which is otherwise normal, probably leads to immediate or fairly sudden death, possibly from fibrillation of the ventricles. Thrombosis usually but not invariably occurs in arteries that are previously diseased and narrowed by sclerosis. Occlusion either by thrombosis of sclerosis under these circumstances may be compatible with life for varying periods of time, though death when it comes is usually sudden. In a small group of cases, the disease pursues its course as a rapidly progressive cardiac insufficiency without features of particular note. But in the great majority of cases, there are significant symptoms and signs that frequently allow of a fairly accurate diagnosis. Most important of these are pain often with a particular radiation, the appearance of transient pericardial friction rubs, often associated with the acute onset of myocardial insufficiency and various forms of tachycardia and cardiac arrhythmia, all occurring in an elderly person usually without signs of valvular heart disease. Unfortunately, there does not seem to be any one electrocardiographic sign that occurs in all cases.

Johns Hopkins Hospital Bulletin, Baltimore

August, 1922, **33**, No. 378

*Generalized Megalokaryocytic Reaction to Saponin Poisoning. J. Firket and E. S. Campers, Baltimore.—p. 271.
*Survival of Cells After Death of Organism. W. H. Lewis and C. C. McCoy, Baltimore.—p. 284.
*Study of Austin-Stillman-Van Slyke Index of Urea Excretion. C. H. Hitchcock and R. Loveland, Baltimore.—p. 294.
*Studies on Experimental Rickets. XXII. Conditions Which Must Be Fulfilled in Preparing Animals for Testing Antirachitic Effect of Individual Foodstuffs. E. V. McCollum, N. Simmonds, P. G. Shipley and E. A. Park, Baltimore.—p. 296.

Saponin Produces Megalokaryocytic Reaction.—A peculiar case of extreme anemia in which there was complete aplasia

of the bone marrow together with a new formation, in the liver and spleen, of myeloid tissue in which megalokaryocytes predominated, led Firket and Campos to make a study of the condition which could not be explained on the basis of anything that could be learned of the man's history, but in attempting to imitate it, the authors found that a very similar condition could be produced by saponin poisoning.

Survival of Cells After Death of Organism.—Small pieces of tissue from various organs of the rat, examined by Lewis and McCoy at varying periods after death, showed that most types of cells survived for a time and certain types of cells survived longer than others, in approximately the following order: tissue macrophages, cartilage cells, kidney tubule cells, smooth muscle cells, salivary gland cells, bladder epithelium, tracheal epithelium, tongue epithelium, endothelium, lymphocytes, large lymphocytes, microcytes, lung epithelium, leukocytes, Kupffer cells, brain macrophages, pancreas cells, red blood corpuscles, liver cells, Sertoli cells, mesenchyme, ovarian follicular cells, epididymis epithelium, adrenal cells, intestinal epithelium, and nerve cells. Macrophages survived for about 240 hours; brain cells for less than an hour; striated muscle developed no granules or vacuoles.

Urea Excretory Coefficient in Renal Insufficiency.—Twenty-seven cases are analyzed by Hitchcock and Loveland in which the Austin-Stillman-Van Slyke urea excretory coefficient was determined. In borderline conditions, as well as in cases presenting marked evidence of renal damage, and also during the relapses of pernicious anemia, there was found a definite lowering of the value of the coefficient. Hence, it is concluded that the Austin-Stillman-Van Slyke coefficient of urea excretion may be of value in demonstrating renal insufficiency, and, particularly in borderline cases, it deserves further study.

Experimental Rickets.—Dietary conditions are discussed by McCollum et al. which must be fulfilled in conducting the "line test" for the calcium depositing substance (antirachitic effect) of foodstuffs. The importance of selecting the highest quality of food grains; of using a rational system of protein purification; the use of salts of proven quality, and of taking into account the content of fat soluble A in alcoholic extracts of wheat germ or other substance which may be employed as sources of water soluble B, are discussed and emphasized. The pronounced anatomic changes which are brought about by relatively small variations in the composition of the diet, with respect to those factors which play a role in bone growth, are illustrated by specific examples from our experimental data. The lactate of calcium proved a less satisfactory source of this element for promoting growth of the bones than did the carbonate. The cause of this difference must await further investigation.

Journal of Biological Chemistry, Baltimore

August, 1922, **53**, No. 2

Proteins of Lima Bean, Phaseolus Lunatus. D. B. Jones, C. E. F. Gersdorff, C. O. Johns and A. J. Finks, Washington, D. C.—p. 231.

*Distribution of Sodium, Potassium, Calcium and Magnesium Between Corpuscles and Serum of Human Blood. B. Kramer and F. F. Tisdall, Baltimore.—p. 241.

Study of Certain Protein Precipitants. A. Hiller and D. D. Van Slyke, New York.—p. 253.

Determination of Three Dissociation Constants of Citric Acid. A. B. Hastings and D. D. Van Slyke, New York.—p. 269.

Effect of Ether Anesthesia on Acid-Base Balance of Blood. D. D. Van Slyke, J. H. Austin and G. E. Cullen, Philadelphia.—p. 277.

*Studies on Experimental Rickets. XXI. Experimental Demonstration of Existence of Vitamin Which Promotes Calcium Deposition. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 293.

Type of Ophthalmia Caused by Unsatisfactory Relations in Inorganic Portion of Diet. Ophthalmia Not Due to Starvation for Fat-Soluble A, and Not Curable by Its Administration. E. V. McCollum, N. Simmonds and J. E. Becker, Baltimore.—p. 313.

Creatinin and Creatin in Muscle Extracts. III. Concerning Presence of Enzymes in Muscle Tissue Which Have Creatin and Creatinin as Their Substrates. F. S. Hammett, Philadelphia.—p. 323.

Analysis of Camel's Colostrum. H. L. Fales, New York.—p. 339.

Effects of Ether Anesthesia Alone or Preceded by Morphin on Alkali Metabolism of Dog. R. L. Stehle, W. Bourne and H. G. Barbour, Montreal, Can.—p. 341.

Metabolism of Sulphur. V. Cysteine as an Intermediary Product in Metabolism of Cystin. H. B. Lewis and D. A. McGinty, Urbana, Ill.—p. 349.

Adaptation of Pentabromoacetone Method to Quantitative Determination of Citric Acid in Urine. W. B. McClure, Chicago.—p. 357.

Electrochemical Study of Condition of Several Electrolytes in Blood. B. S. Neuhausen and E. K. Marshall, Jr., Baltimore.—p. 365.

Determination of Uric Acid. H. Jackson, Jr., and W. W. Palmer, New York.—p. 373.

Calcium and Phosphorus Metabolism in Childhood. H. C. Sherman and E. Hawley, New York.—p. 375.

Influence of Position and of Temperature on Reaction of Aliphatic Amino Nitrogen with Nitrous Acid. M. S. Dunn and C. L. A. Schmidt, Berkeley, Calif.—p. 401.

Water Soluble Constituents of Alfalfa Plant. T. B. Osborne, A. J. Wakeman and C. S. Leavenworth, New Haven, Conn.—p. 411.

Phosphoric Esters of Some Substituted Glucoses and Their Rate of Hydrolysis. P. A. Levene and G. M. Meyer, New York.—p. 431.

Sulphuric Esters of Some Substituted Glucoses and Their Rate of Hydrolysis. P. A. Levene and G. M. Meyer.—p. 437.

Preparation and Analysis of Animal Nucleic Acid. P. A. Levene, New York.—p. 441.

Benzylidene-Ethyl-Chitosaminate and Benzylidene-Ethyl-Diazogluconate (Mannonate). P. A. Levene, New York.—p. 449.

Fate of Some of Phenylacetylated Amino-Acids in Animal Organism. G. C. P. Shiple and C. P. Sherwin, New York.—p. 463.

Relation Between Age and Concentrations of Protein Fractions in Blood of Calf and Cow. P. E. Howe, Princeton, N. J.—p. 479.

Rate of Hydrolysis of Wheat Gliadin. H. B. Vickery, New Haven, Conn.—p. 495.

Abnormal Milk and Influence of an Aseptic Udder Inflammation on Composition of Milk. B. Sjollema and J. E. Van Der Zande, Utrecht, Holland.—p. 513.

Earthy Metals in Blood Corpuscles and Serum.—Kramer and Tisdall found that the corpuscles of human blood do not contain appreciable amounts of sodium or calcium. The average concentration of potassium per hundred c.c. of corpuscles found in thirteen normal adults was 428 mg. The concentration of magnesium in whole blood is slightly higher than that of serum. The extent to which the concentration of sodium, potassium, calcium, and magnesium in whole blood and corpuscles may vary is indicated in the tables. Evidence is presented showing that there is an excess of about 16 per cent. of basic radicles over the well known acid radicles in both serum and corpuscles. It is likely that the excess is in combination with proteins. Sodium represents about 92 per cent. of the fixed base of serum; potassium, practically all that of corpuscles.

Fourth Vitamin has Calcium Depositing Properties.—The evidence presented by McCollum et al. demonstrates that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from fat soluble A. These experiments clearly demonstrate the existence of a fourth vitamin whose specific property is to regulate the metabolism of the bones. Coconut oil which had received no chemical treatment whatever possesses demonstrable calcium depositing properties, whereas it does not show a comparable antixerophthalmic effect.

Journal of Experimental Medicine, Baltimore

August, 1922, **36**, No. 2

*Loss of Hemolytic Capacity by Fraction of Culture of Hemolytic Streptococcus Without Change in Agglutination Characteristics. E. Valentine and C. Krumwiede, New York.—p. 157.

Organotropic, Bacteriotropic and Leukocytotropic Actions of Certain Organic Chemicals. L. D. Felton and K. M. Dougherty, New York.—p. 163.

Significance of Colostrum to New-Born Calf. T. Smith and R. B. Little, Princeton, N. J.—p. 181.

*Influence of Glands with Internal Secretion on Respiratory Exchange. IV. Effect of Suprarenal Insufficiency in Cats. W. J. M. Scott, New York.—p. 199.

*Experimental Production of Periarteritis Nodosa in Rabbit with Consideration of Specific Causal Excitant. W. H. Harris and A. V. Friedrichs, New Orleans.—p. 219.

*Studies on Experimental Measles. II. Enanthematous, Exanthematous, Pyrexial, and Leukocytic Syndrome Produced in Rabbit by Intravenous Inoculation of Blood from Cases of Human Measles. C. W. Duval and R. D'Aunoy, New Orleans.—p. 231.

*Studies on Experimental Measles. III. Symptom-Complex in Guinea-Pig and Rabbit Following Intratracheal and Intravenous Injections of Filtered Nasopharyngeal Secretions from Cases of Human Measles. C. W. Duval and R. D'Aunoy, New Orleans.—p. 239.

Changes in Number of Small Lymphocytes of Blood Following Ligation of Thoracic Duct. F. C. Lee, Baltimore.—p. 247.

Loss of Hemolytic Capacity by Hemolytic Streptococcus.—Valentine and Krumwiede discuss an instance in which a culture of hemolytic streptococcus developed a nonhemolytic fraction which as determined by its agglutinogenic, agglutination and agglutinin absorption characters was identical with the hemolytic fraction, the only variation being one of

function, or physiologic action. This functional variation has proved permanent, as long as observed, for both fractions have continued to breed true. This study is offered as additional evidence in favor of the hypothesis that functional changes among bacteria are, at most, only very infrequently associated with changes in the antigenic matrix of bacteria.

Effect of Suprarenal Insufficiency on Heat Production.—Scott states that severe and sufficient nonfatal injury to the suprarenal cortex by freezing or by ligation in cats causes a significant and prolonged increase in heat production. Lethal injury to the suprarenals by freezing, ligation, or partial excision in cats causes a fall in heat production. Insufficient injury to the suprarenals by freezing, ligation, or partial excision in cats produces no significant alteration in heat production. Further evidence of a close thyroid-suprarenal cortex interrelationship is indicated by the rapidity of thyroid hyperplasia and by the effects of potassium iodid after suprarenal crippling.

Experimental Production of Periarteritis Nodosa.—The material employed by Harris and Friedrichs was derived from a typical case of periarteritis nodosa. The patient had suffered from general weakness, pain in the epigastric area and lower abdomen and vomiting. The necropsy was performed seventy-two hours after death. The coils of the small intestine adhered on the right side to a mass about the size of a cocoanut, consisting of a blood clot surrounding the right kidney. Another large clot was present beneath the omentum, and numerous more recent smaller clots were between the coils of the intestines. The gastro-epiploic artery presented two large fusiform aneurysmal dilatations. The source of the hemorrhage around the right kidney was a ruptured aneurysmal sac within the outer portion of the cortex of the kidney. The external surface of this kidney presented multiple bizarre shaped areas of mottled red and buff color. Composed of arboriform injected vessels, some of which had ruptured, giving rise to petechial extravasations. Scattered irregularly along the course of the coronary arteries and their rami were multiple discrete nodosities. Certain arteries in the liver and afferent arteries to the mesenteric lymph nodes presented the microscopic changes of periarteritis nodosa. Portions of the nodules were ground up with physiologic solution of sodium chlorid and some of this material was injected into rabbits. The lesions induced in rabbits were identical with those occurring in man and consisted of exudative and degenerative processes within the walls of the smaller arteries resulting in aneurysmal formations and thromboses. Hence it is concluded that periarteritis nodosa is a specific infectious disease which is transmissible to the rabbit. The micro-organism inducing the disease is capable of going through a Berkefeld N filter and is therefore to be classed with the group of so-called filter passers.

Experimental Measles.—Defibrinated human blood obtained from measles cases at the stage of temperature height was used by Duval and D'Aunoy for inoculation. The results obtained appear to show that an active transmissible virus exists in the blood of measles patients during the eruptive stage of the disease. This virus produces in rabbits after intravenous injection a specific reaction analogous in all essential features to that of the human infection. Repeated passage of the virus of measles through the rabbit seems to increase its virulence. It is a noteworthy fact that the pneumonia so common in fatal cases of human measles was not evident in any of the experimental animals. The authors believe this to be of considerable significance, especially in elucidating the direct etiologic factor of the fatal pneumonias so often present in human measles cases. Apparently such infections in man can be explained purely on the basis of the destruction of normal defense barriers by the specific excitant of the infectious disease, and the lack of host resistance to the ordinary pyogenic micro-organism.

Filter Passing Virus Cause of Measles.—The reaction produced in animals as a result of the introduction into their circulatory and respiratory systems of filtered nasopharyngeal washings from cases of human measles indicates that there is present as a causal agent in the nasopharyngeal secretions of measles cases a filter-passing virus.

Journal of Industrial Hygiene, Boston

August, 1922, **4**, No. 4

Industrial Hygiene of Fur Cutting and Felt Hat Manufacture. **A. Hamilton**, Boston.—p. 137.
Time and Motion Study. **E. Farmer.**—p. 154.
Tuberculosis as It Affects Industrial Worker. **F. A. Craig, Philadelphia.**—p. 170.
Certain Aspects of Problem of Zinc Toxicity. **P. Drinker, Boston.**—p. 177.

Journal of Nervous and Mental Diseases, New York

August, 1922, **56**, No. 2

*Spinal Drainage Following Intravenous Arsphenamin. **C. B. Craig** and L. B. Chaney, New York.—p. 97.
*Memory Defect of Korsakoff Type Observed in Multiple Neuritis Following Toxemia of Pregnancy. **F. A. Ely, Des Moine, Iowa.**—p. 115.
*Two Cases of Epidemic Encephalitis Showing Unusual Neurologic Findings. **J. H. Leiner, New York.**—p. 126.

Spinal Drainage Following Intravenous Arsphenamin.—As a result of clinical research and experience in treating syphilis of the nervous system with the various arsenical preparations by simple intravenous administration, by the safe intraspinous methods and combinations of these with mercurial treatment, the authors are of the opinion that no single method of treatment is applicable in all cases, and that the intravenous administration of arsphenamin is the method of choice. Spinal drainage after this procedure is not hazardous. It will prove of benefit in some cases which have arrived at a position of inertia under intravenous administration alone. As satisfactory clinical and serologic results may be obtained by intravenous arsphenamin and drainage as are obtained by the intraspinous method and without the severe root pains frequently set up by the latter method.

Multiple Neuritis Following Toxemia of Pregnancy.—Ely is convinced that multiple neuritis is a frequent sequel of vomiting of pregnancy; that it may develop during gestation or in the puerperium without any obtainable evidence of underlying infection. A mild psychosis of the Korsakoff type is very prone to occur in this type of multiple neuritis. Therapeutic abortion, Ely suggests, is perhaps too long delayed in many cases. It is the best remedial measure and the most assured means of preventing multiple neuritis. Four cases are cited by Ely. The chief point of interest was the memory defect aside from the ordinary polyneuritic symptoms. It was identical with that observed in cases of alcoholic neuritis or carbon monoxid poisoning.

Unusual Nervous Symptoms in Epidemic Encephalitis.—Two cases are reported by Leiner which showed an acute febrile onset, sore throat, sneezing, headache, etc., followed by hemiplegia, cranial nerve involvement with hemianopsia, mental confusion, disorientation, etc. Both cases showed a typical neuritis with slow recession. An additional striking feature was that both cases evidenced thalmic involvement.

Journal of Radiology, Omaha

August, 1922, **3**, No. 8

*Radiotoxemia: Cause and Prevention. **E. G. Beck, Chicago.**—p. 301.
*Bone Diseases: Nonsuppurating Osteomyelitis (Garré); Infectious Ossifying Peritostitis (Bloodgood). **J. C. Bloodgood, Baltimore.**—p. 310.
Value of Imbedding Radium in Treatment of Carcinoma of Breast. **R. H. Boggs, Pittsburgh.**—p. 317.
Effect of Roentgen Ray on Germ Cells. **J. W. Mavor, Schenectady, N. Y.**—p. 320.
System of Roentgen-Ray Anthropometry (Skull). **A. J. Pacini, Washington, D. C.**—p. 322.

Prevention of Radiotoxemia.—Beck says that by radical surgery to expose the tumor and remove as much of it as is consistent with safety to the patient and then leave the wound open no matter how large it may be, so as to be able to give direct application of the radioactive agent into the cancer bed, the toxemia may be prevented.

Infectious Ossifying Periostitis.—Although he discourages drawing conclusions on the material analyzed, Bloodgood is convinced that apparently there is a definite type of nonsuppurating ossifying periostitis or sclerosing osteomyelitis. He has sufficient cases to demonstrate that trauma and syphilis may produce it. It is observed as a posttyphoid and postinfluenzal lesion, and apparently it may be secondary to

any type of infection. As a single lesion in the early stage it will present difficulties in differentiating it from periosteal sarcoma. When it is multiple, sarcoma can be excluded. The roentgen-ray picture differentiates it from multiple osteitis fibrosa and metastatic carcinoma. The most important points in treatment are the administration of arsphenamin intravenously and a search for the focus of infection, which, when found, should be removed. No evidence is at hand as yet that incision with removal of the new bone formation is helpful.

Journal of Urology, Baltimore

August, 1922, **8**, No. 2

Value of Blood Transfusion to Urologist. W. F. Martin, Battle Creek, Mich.—p. 105.
*Undiagnosed Renal Hemorrhage. I. S. Kall, Chicago.—p. 115.
Intrarenal Pressure. B. A. Thomas and J. E. Sweet, Philadelphia.—p. 131.
*Carbuncle of Kidney. H. L. Kretschmer, Chicago.—p. 137.
Nephrolysis and Ureterolysis. G. Kolischer, Chicago.—p. 149.
Duplication of Renal Pelvis and Ureter: Unsuccessful Heminephrectomy. F. S. Schoonover, Rochester, Minn.—p. 155.
Cystography an Aid in Diagnosis of Certain Urologic Conditions. N. Moore, St. Louis.—p. 159.
Character and Treatment of Bladder Ulcers. F. L. Keyes, Jr., New York.—p. 167.
Urinary Lithiasis in Children. G. J. Thomas and C. O. Tanner, Minneapolis.—p. 171.

Undiagnosed Renal Hemorrhage.—In two cases of hematuria unaffected by rest in bed or medicinal treatment Koll did a nephrectomy. In one case the pelvis was seen to be engorged with blood which extended up and around the entire kidney between the capsule and the parenchyma; the ramifications of the calyces were filled with blood. Otherwise the organ appeared entirely normal, the structures standing out well. In the second case there was marked hemorrhage into the parenchyma at the upper pole, finally disappearing about the midthird of the kidney into the pelvis. Several hundred sections from each specimen taken at various points showed microscopically, in the first case the bleeding most profuse in the pelvic supporting tissue and into the larger divisions of the calyces, extending around the kidney subcapsularly. There is also considerable engorgement of the intertubular connective tissue but the tubules and glomeruli are practically free from blood. There was no round cell infiltration, no degeneration of the tubular epithelium and no fibrous tissue formation. In the second case the collection of blood was markedly intertubular and intraglomerular, the former more pronounced. The pelvic tissue also contained accumulations of blood and many of the pelvic blood vessels were engorged. Again there was a total absence of involvement of the tubules and no evidence of any fibrous tissue. The conclusion is drawn that these two cases belong to a classification of renal pathology the etiology of which is as yet unnamed.

Carbuncle of Kidney.—By carbuncle of the kidney is meant a metastatic infection of the kidney by staphylococci, secondary to an infection elsewhere by this organism, such as a carbuncle or felon, in which the lesion of the kidney has the gross appearance of a carbuncle as seen in other parts of the body. Kretschmer cites two cases, one unilateral and the other bilateral, in which the primary foci were demonstrable. In one case this was a felon of the right thumb. The kidney symptoms pointed to involvement of the left kidney. It was removed. Several large abscesses, which contained thick, greenish-yellow pus were situated mostly in the anterior half of the cortex. In close proximity to the larger abscesses were seen several smaller areas that had the appearance of typical carbuncles. When these areas were pressed, thick, greenish-yellow pus came to the surface. Cultures of the pus from the abscesses showed hemolytic staphylococci. At the time the patient came under observation the felon had completely healed; hence it was not possible to obtain cultures to determine whether or not the organisms found in the kidney were identical with the organisms which produced the felon. The second patient had a carbuncle of the neck. The right kidney became involved and its removal was necessitated. In the medulla, at the center of the kidney, were many small, white, opaque areas, irregular in form and irregularly distributed, which proved to be small isolated abscesses which on cut surface had the gross appearance of a carbuncle. Pus from the abscesses showed culture of pure *Staphylococcus aureus.* Several months afterward the left kidney became affected and the patient died. The kidney contained many pus pockets. The only uninvolved kidney tissue was at either pole, a little more toward the lower than the upper pole.

Kentucky Medical Journal, Bowling Green

August, 1922, **20**, No. 8

Diagnosis of Tertiary Syphilis. E. E. Butler, Louisville.—p. 517.
Preventable Blindness. I. A. Lederman, Louisville.—p. 522.
Interesting Roentgen-Ray Study of Foreign Body (Honey Locust Seed) in Right Bronchus. C. E. Purcell, Paducah.—p. 529.
Intensive Roentgen-Ray Therapy. W. J. Young, Louisville.—p. 532.
Emergencies and Complications in Obstetrics: Case Report. H. M. Rubel, Louisville.—p. 537.
Id. Case Reports. C. W. Karraker, Louisville.—p. 539.
*Toxemia of Pregnancy Associated with Pellagra. H. E. Tuley and T. F. Hale, Louisville.—p. 541.
Fat Intolerance. J. W. Bruce, Louisville.—p. 545.
Thyroid Glands. H. C. Clark, Falmouth.—p. 547.
Quartz Light Therapy. S. J. Rose, Winchester.—p. 549.
Syphilitic Anemia: Banti's Disease; Case Reports. L. W. Frank, Louisville.—p. 551.
Puerpural Infection. D. H. Kash, Jackson.—p. 557.
Talma's Operation for Cirrhosis of Liver; Splanchnic Anesthesia. M. Casper, Louisville.—p. 558.
Mouth Sepsis as Related to Systemic Disease. O. W. Brown, Falmouth.—p. 560.
Malignant Conditions of Face and Neck. C. K. Beck, Louisville.—p. 562.
Endocrines and Their Relation to Future Medicine. P. K. Holmes, Lexington.—p. 567.
Symptoms and Treatment of Puerpural Infection. R. C. Burrow, Cunningham.—p. 570.
Preventive Medicine and Its Achievements. J. H. Harrison, Hawesville.—p. 572.
*Unusual Case of Congenital Hernia. W. T. McConnell, Louisville.—p. 574.
Two Diabetic Cases in Young. R. H. Davis, Louisville.—p. 576.

Toxemia of Pregnancy Associated with Pellagra.—A woman, three and one-half months pregnant, had pernicious vomiting of pregnancy. After a thorough trial of the usual remedies without avail, it was decided that the only way to relieve the symptoms was by evacuating the contents of the uterus. This was done, but instead of improving, the patient went from bad to worse. She lost flesh rapidly; she had a considerable amount of hallucinations, not very much rise in temperature, a rapid rise in the pulse rate; but the feature which impressed Tuley and Hale most forcibly was a peculiar bronzing of the skin on the forearms, legs and cheeks with a tremendously dry tongue suggestive of pellagra. The patient died.

Congenital Abdominal Hernia.—In McConnell's case practically all of the small intestines, the vermiform appendix and part of the cecum were protruding through a complete perforation in the abdominal wall, lying loose and free on the surface of the abdomen. The opening was circular, located about 1 cm. to the right of the umbilicus, and measured 1.5 cm. in diameter. The parietal layer of the peritoneum was completely fused with the abdominal skin around the edge of the opening, making a smooth firm border, having the appearance of healthy tissue. The recti muscles were widely separated, the aperture being well to the mesial side of the right rectus. The coils of intestine were very dark looking, swollen and congested. It was with great difficulty that the protruding mass was returned into the abdominal cavity. McConnell then injected some 5 per cent. argyrol into the abdomen through this opening, and applied a dressing held tightly in place with strips of adhesive plaster. About the third day severe peritonitis developed, the abdomen becoming very much distended, the child vomiting yellowish-green material frequently and passing a watery, greenish stool about once every hour. In about four days this condition began to subside. By the time the baby was two weeks old the distention had practically disappeared, the stools were about normal, and the baby was taking its nourishment regularly, vomiting only occasionally, and then nothing but curdled milk. The opening in the abdomen had contracted until it was almost closed and had a healthy appearance. On the nineteenth day the abdomen distended very rapidly. In two or three hours the distension disappeared suddenly, the child went into profound shock, and died within one hour

At the time of death a match could not be passed through the abdominal opening. About four months prior to the birth of the child, the maternal grandmother was operated on for a very large umbilical hernia. The recti muscles of the child's mother are also very widely separated, and the abdominal wall is very thin in the umbilical region, but as yet she has no hernia.

Laryngoscope, St. Louis

August, 1922, **32**, No. 8

Anatomic Studies of Dorello's Canal. H. H. Vail, Cincinnati.—p. 569.
Optic Nerve in Sinus Disease. C. W. Cutler, New York.—p. 576.
Case of Chronic Purulent Otitis Media Complicated by Perisinal and Extradural Abscesses, with Severe Meningeal Symptoms. D. S. Dougherty, New York.—p. 587.
Relation Between Thyrotoxicosis and Tonsillar Infection. L. E. Brown, Akron, Ohio.—p. 590.
Frontal Lobe Abscess Secondary to Sinusitis. J. Friedman and S. D. Greenfield, Brooklyn.—p. 608.
Odor from Healing Mastoid Wounds Simulating That from Necrosing Bone As ociated with Secondary Invasion of Diphtheroids. A. M. Dunlap, Pekin, China.—p. 614.
Case of Sinus Phlebitis with Normal Middle Ear at Time of Operation. I. Friesner, New York.—p. 617.
Case of Brain Abscess in a Syphilitic. T. L. Saunders, New York. —p. 619.
Case of Temporosphenoidal Abscess Complicating Chronic Purulent Otitis with Spontaneous Rupture and Hernia into the Mastoid Antrum. D. S. Dougherty, New York.—p. 621.
Ethmoiditis and Sphenoiditis in Relation to Eye Disturbance; Report of Three Cases. M. A. Warlow, Philadelphia.—p. 623.
New Instrument for Resecting Internal Wall of Maxillary Sinus. W. Bishop, Minneapolis.—p. 631.
Report of Two Cases of Syphilis of Eighth Nerve and Inner Ear. E. G. Gill, Roanoke, Va.—p. 634.

Missouri State Medical Association Journal, St. Louis

August, 1922, **19**, No. 8

*Treatment of Pelvic Infections by Injections of Milk. G. Gellhorn, St. Louis.—p. 341.
Glaucoma Following Cataract Operations. J. S. Lichtenberg, Kansas City, Mo.—p. 345.
Missouri Blind-Pension Law from Ophthalmologist's Standpoint. H. D. Lamb, St. Louis.—p. 346.
Medical Economics. W. R. Beatie, Springfield.—p. 351.
*Study of Intradermic Vaccination. Report of Six Hundred and Twenty Cases. T. Twyman, Independence.—p. 353.
Suggestion for Modification of Medical Course from Student Viewpoint. L. D. Cady and M. F. Weymann, St. Louis.—p. 358.

Foreign Protein Therapy in Pelvic Infections.—Attention is directed by Gellhorn to the part which foreign protein therapy seems to be destined to play in gynecology. Pelvic infections due to the gonococcus are the principal field for the foreign protein therapy, but successes may also be obtained in infections due to other causes. Milk has been found to be a very suitable, though not the only, medium for treatment. It is introduced by intramuscular injections. Dosage and technic are described. No untoward by-effects or after-effects need be anticipated; in particular, there is no danger of anaphylactic shock. The general condition is improved in every case. Of ten cases of gonorrhea of the tubes, six were cured completely; of these, two had large tumors which disappeared entirely. Two patients were improved. Two were unimproved. Three patients with rather rare pathologic conditions in the pelvis were cured or materially benefited by the milk injections. From personal observations and the study of the literature it appears to Gellhorn that mainly the tubes, the uterus, and possibly the bladder are favorably influenced by foreign protein therapy. The ovaries seem to remain refractory. Exudates are brought to absorption, but adhesions are left undisturbed. In order to protect the method from discredit by injudicious use, the cases to be treated should be selected carefully. The gonorrhea of the cervix itself remains unaffected by the treatment. For the sake of preventing reinfection, the cervix should be treated separately. The milk injections are no cure-all. A certain small percentage of failures is unavoidable. But in the majority of cases a complete cure can be accomplished without pain, risk, or mutilation where formerly only serious operations gave any promise of relief.

Intradermic Vaccination.—Intradermic vaccination is the injection of the virus of vaccina or cowpox between the layers of the skin for the purpose of immunizing against smallpox or mitigating its effects. Twyman reports on the study of 620 cases in which the records are complete. The percentage of primary takes was 80.9. The percentage of takes on those who were vaccinated more than once was 92.8. The percentage of takes in the previously vaccinated, not excluding the immune, was 54. Of those claiming to have had smallpox (twenty-three cases), ten took. A cutaneous reaction of anaphylactic nature may or may not occur in the injected area of the previously successfully vaccinated and in those who have had smallpox. There were no secondary infections observed in this series. There was little or no complaint of pain. Five cases of vaccina were observed. Scarring may be entirely absent. It would seem that intradermic vaccination is the method of choice when the individual is liable to rub off the vaccine or apply antiseptics to prevent vaccination from being a success. It would seem advisable to try intradermic vaccination on those individuals who repeatedly fail to react to ordinary vaccination methods.

New York State Journal of Medicine

August, 1922, **22**, No. 8

Value of Eye Observations in Fractures of Skull and Severe Head Injuries. J. A. Kearney, New York.—p. 341.
Relation of Certain Ocular and Cerebral Conditions to Infections in Nose and Throat. E. R. Faulkner, New York.—p. 344.
Surgical Treatment of Cranial and Intracranial Injuries. E. J. King, New York.—p. 347.
Significance of Papilloedema in Brain Tumors. I. S. Wechsler, New York.—p. 354.
Relation of Syphilis to Diagnosis and Surgery. A. M. Crance, Geneva. —p. 357.
Dr. James Primrose and His Vulgar Errors. W. R. Riddell.—p. 360.
Mosquito Elimination in Nassau County. A. D. Jaques, Lynbrook. —p. 371.
Cornell Pay Clinic. A. W. Ferris, Watkins.—p. 372.

Pennsylvania Medical Journal, Harrisburg

August, 1922, **25**, No. 11

Rôle of Nonmedical Graduate in Medical Laboratory. C. Y. White, Philadelphia.—p. 755.
Goiter; from Standpoint of Clinician. C. E. Ervin, Danville.—p. 760.
*Achylia Gastrica. J. Sailer, Philadelphia.—p. 767.
*Eclampsia; Studies in Etiology. J. S. Lawrence, Philadelphia.—p. 771.
What Cases of Eclampsia Shall We Section? W. E. Parke, Philadelphia.—p 775
*Xeroderma Pigmentation; Report of an Unusual Case. W. H. Guy, Pittsburgh.—p. 780.
Difficulties and Practicability of Infant Feeding in a Country Practice. F. P. Simpson, Mapleton Depot.—p. 782.
Johson's Tonsil Forceps. G. B. Johson, Franklin.—p. 785.
Laryngeal Diphtheria. J. B. McMurray, Washington.—p. 786.
Bony Projections into Tonsils: Case Report. G. R. S. Corson, Pottsville.—p. 788.
Suggestions Concerning County Tuberculosis Sanatoria in Pennsylvania. A. P. Francine, Harrisburg.—p. 789.
Acute Perforating Duodenal and Gastric Ulcer with Report of Cases. J. D. Singley.—p. 794.
Bacteriologic Examination of Pus from Mastoid Operation with Complications from Various Organisms. R. Milligan.—p. 795.
Subhyaloid Hemorrhage in Pregnancy. E. B. Heckel.—p. 796.

Achylia Gastrica.—The prognosis for cure of achylia gastrica, Sailer asserts, is most unfavorable. Patients may have periods during which the hydrochloric acid reappears in the stomach contents, but in his experience this return has never been anything but temporary and in the forms of achylia for which no definite cause has been found it can be expected that they will remain without secretion of gastric juice throughout life. With persistence in the treatment, however, they achieve a degree of comfort which is practically that of normal health. The nutrition remains good, or if not good, improves. The associated symptoms are relieved or diminished and the duration of life does not seem to be shortened.

Eclampsia.—Lawrance analyzes 144 cases which are divided into three groups according to stage: (1) mild; (2) severe; (3) convulsive. The analysis indicates that the eclamptics belonged to the physical and mental types commonly found in the mild and severe stages and that they exhibited symptoms previous to the convulsion that were similar in variety and incidence to those of the mild and severe stages. A decline in the activity of the maternal antibodies, or hemolysins, manifested itself clinically. This period of progressive decrease in the activity of the maternal antibodies is followed by a short period in which the body is swamped with uncombated protein poisons—chorion. Then comes the sharp anaphylactic reaction manifested by acute cerebral and pulmonary edema and the convulsion. The

clinical evidence that the convulsion is an anaphylactic reaction, is as follows: (*a*) favorable influence on the convulsions of attempts at raising antibody activity, for instance, by colonic irrigation, lavage or morphin; (*b*) favorable influence on convulsions of attempts at decreasing the amount of protein poison (chorionic) discharged into the maternal circulation; (*c*) unfavorable influence on the convulsions of lowering antibody activity. The sequence of events is summarized as follows: A. Mild state: Mental deficiency, unhygienic living; symptoms, constipation, etc.; acidosis; decrease in antithrombin, increase in fibrinogen. B. Severe state commences: Appearance of renal and hepatic lesions; breakdown in antibody and ferment protections. C. Convulsive state commences: Placental elements swamp the system; pulmonary and cerebral edema acute; anaphylaxis; convulsion.

Xeroderma Pigmentosum.—The case reported by Guy is that of a man 30 years of age who kept himself fairly comfortable by complete avoidance of sunlight. He worked in a coal mine, entering the mine early in the morning and leaving after dark, and slept in a darkened room.

Southern Medical Journal, Birmingham, Ala.

August, 1922, **15**, No. 8

*Food Allergy as Cause of Abdominal Pain. W. W. Duke, Kansas City, Mo.—p. 599.
Roentgen-Ray as an Adjunct in Diagnosis of Gastro-Intestinal Diseases. F. H. Clark, Oklahoma City, Okla.—p. 606.
Rationale of Digestive Therapy. E. H. Gaither, Baltimore.—p. 611.
*Intracranial Hemorrhage in New-Born: Case Report. E. Rosamond, Memphis.—p. 618.
Apparently Hopeless Case of Polyglandular Disturbance with Infantile Genitalia in Body Seventeen and One-Half Years: Complete Cure at Twenty-One Years. C. E. Boynton, Atlanta, Ga.—p. 619.
Control of Typhoid in Rural Communities. A. P. Harrison, Austin, Tex.—p. 621.
Soil Pollution, Public Health Problem of Today. E. L. Bishop, Nashville, Tenn.—p. 625.
Unorganized County Problems and How Best to Take Care of Them. E. G. Williams, Richmond, Va.—p. 631.
*Surgical Treatment of Bronchiectasis. E. A. Graham, St. Louis.—p. 639.
Spinal Anesthesia. J. R. Garner, Atlanta, Ga.—p. 646.
Prostatectomy: Preoperative and Postoperative Treatment. R. Thompson, Charlotte, N. C.—p. 650.
Ocular Manifestations Resulting from Fifth Nerve Irritation. E. H. Cary, Dallas, Tex.—p. 657.
Laryngeal Tuberculosis. J. B. Greene, Asheville, N. C.—p. 664.

Food Allergy as Cause of Abdominal Pain.—This subject was discussed by Duke in the *Archives of Internal Medicine* **28**:151 (Aug.) 1921, and six cases were reported.

Intracranial Hemorrhage in New-Born.—Out of seventeen cases of convulsions in the new-born seen by Rosamond in the past twelve months, fourteen manifested delayed bleeding-clotting time and were in all probability due to cerebral hemorrhage. The points of interest in the one case cited were the occurrence of an intracranial hemorrhage in a cesarean baby, the absence of all external bleeding, the severity of the convulsions, their duration of thirty-six hours before efforts to stop the hemorrhage were made and the prompt cessation of the convulsions when the bleeding was stopped. The thirteen other cases all responded promptly to blood therapy. Since a routine determination of the blood coagulability would reduce the mortality of the new-born practically 50 per cent., and, furthermore, since it would probably prevent a large number of the cases of birth palsies, Rosamond thinks it is well worth the extra time and care it would take to make this a universal, routine procedure.

Surgical Treatment of Bronchiectasis.—The treatment of bronchiectasis has always been unsatisfactory. Certain cases of recent origin, Graham says, respond to the comparatively simple procedure of artificial pneumothorax and are made free from symptoms. In some cases a foreign body is present which should be removed. Radical surgery should probably not be attempted until after less radical measures have been tried. There are certain cases in which satisfactory results can be obtained only by radical means. Pneumotomy with simple incision and drainage of the cavities has generally proved unsatisfactory. The most rational radical measure is lobectomy when the process is confined to a single lobe. The fourth case in which lobectomy has been performed with an entirely satisfactory result is described.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

August, 1922, **3**, No. 4

*Experiments Employing Quantitative Method in Study of D'Herelle Phenomenon. H. B. Maitland, Toronto.—p. 173.
*Vitamins, Exposure to Radium and Intestinal Fat Absorption. J. C. Mottram, W. Cramer and A. H. Drew.—p. 179.
Indicators for Culture Media Containing Varying Acids and Buffers. I. W. Hall.—p. 182.
Variation Phenomena in Streptococci, with Special Reference to Colony Form, Hemolysin-Production and Virulence. M. L. Cowan.—p. 187.
Experiments on Infectivity of Typhus Virus Contained in Lice (Pediculus Humanus and Pedicinus Longiceps). E. E. Atkin and A. Bacot. —p. 196.
Relation of Natural Diphtheria Antitoxin in Blood of Man to Previous Infection with Diphtheria Bacilli. S. F. Dudley.—p. 204.
Nature of Action of Potato on Growth of B. Influenzae. P. Fildes.—p. 210.
Cultivation of Spironema Duttoni from Case of Relapsing Fever. I. J. Kligler.—p. 215.

Quantitative Method in Study of d'Herelle Phenomenon.—A quantitative method for estimating the strength of a sample of the active principle which causes the d'Herelle phenomenon is described by Maitland. Employing this method the rate of increase of active principle in a bouillon culture was determined. There was an early period of lag, a short period of rapid increase and an indefinitely prolonged period of equilibrium. The increase of the active principle did not coincide with any constant alteration in the total bacterial content of the culture in which it was increasing. Lysis did not always occur; sometimes there was increase in the total number of bacteria. Increase was shown to require three factors—active principle, living bacteria, and some additional factor. Several substances were found to contain this factor.

Vitamins, Exposure to Radium and Intestinal Fat Absorption.—The histochemical study of fat absorption from the intestine made by Mottram et al. demonstrates that the functional activity of the intestinal epithelium as regards absorption is profoundly affected by the presence in the food of vitamins A and B, particularly the latter. These "food-accessory factors" have a stimulating action on intestinal absorption, and probably also on intestinal digestion, even in quite normal animals which have not been subjected previously to any special diet. On the other hand, in the absence of vitamins there is no delay in the passage of food in such animals. After exposure to radium sufficient to produce a lymphopenia the absorption of food is impaired in the same way as if vitamins were absent, and this effect cannot be counteracted by an abundant supply of vitamins in the food. The observations confirm the view previously expressed by the authors that lymphocytes play an important part in the absorption of food, and that the marasmus resulting from a deficiency of the water-soluble vitamin is due to an impaired absorption and assimilation of food from the intestine.

China Medical Journal, Shanghai

July, 1922, **36**, No. 4

Amebic Dysentery. W. B. Billinhurst.—p. 287.
Rupture of Abdominal Wall, with Coils of Intestine Prolapsed Through Perforation in Woman Five Months Pregnant. J. H. Montgomery. —p. 297.
Treatment of Secondary Anemia, When Caused by Infection with Ancylostoma Duodenalis. F. R. Whelply, Jr.—p. 301.
*Unusual Bullet Wound Case. F. R. Whelply, Jr.—p. 302.
Pharmacognostic Notes (1) Chinese Materia Medica. B. E. Read.—p. 303.
Size and Weight in Two Hundred and Sixty-Nine Chinese Children and Young Adults.—p. 305.
Effect of Surface Tension of Culture Medium on Bacillus Tuberculosis. P. Y. Chang.—p. 311.
Slide Rule for Computing and Converting Chinese Dates and Ages. P. H. Stevenson.—p. 327.
Women's Work and General Hospital. J. P. Maxwell.—p. 333.
*Sachs-Georgi Test for Syphilis. H. W. Y. Taylor.—p. 344.
Medical Evangelism. G. W. Leavell.—p. 359.

Unusual Bullet Wound.—In Whelply's case the entrance wound was in the scapula about midway and just under the spinous process. Its exit was through the pectoral muscles 2¼ inches up from the anterior axillary fold at a point 7 inches from the midline, giving a wound course which apparently showed injury to the lung and pleura. There was

profuse hemorrhage and a probe showed the entrance wound to pass outward toward the head of the humerus. The bleeding vessels were high up in the axilla and were direct branches from the axillary artery. Also the posterior and internal cords of the brachial plexus had been severed. The bullet had glanced from the head of the humerus and gone forward and internal for its exit, this causing the severance of the nerve trunks with practically no arterial injury.

Value of Sachs-Georgi Test.—Seven hundred serums were tested by Taylor by the Sachs-Georgi test. There was 92.2 per cent. correspondence with the Wassermann test. The Sachs-Georgi test, performed with an extract of the heart of the black pig common to North China, is considered a reliable test for syphilis. The test is simple, cheap and specific. In the Wassermann laboratory it is very useful as a supplementary aid to blood and spinal fluid test.

Edinburgh Medical Journal

August, 1922, **29**, No. 2

Urethroscope as Aid in Diagnosis and Treatment of Gonorrhea. C. C. Brown.—p. 49.
*Action of Quinidin Sulphate in Three Cases of Auricular Fibrillation. W. M. Walwyn and J. S. Fowler.—p. 65.
Spinal Anesthesia. D. N. Kalyanvala.—p. 74.

Quinidin Sulphate in Auricular Fibrillation.—The three cases of auricular fibrillation reported by Walwyn and Fowler were probably influenzal, rheumatic, and secondary to emphysema of the lungs and arterial disease, respectively. One was a case of fibrillation of a few weeks' duration with good compensation. A normal rhythm was established after 2 gm. quinidin had been given, and was maintained thereafter. The second case was of longer standing—at least one year's duration—and was complicated by disease of the mitral valve and associated with signs of failure of the myocardium. It offers a good illustration of the value of quinidin (1) in restoring normal rhythm, (2) in maintaining the normal rhythm when given in smaller doses. Three times, when quininidin was stopped, did fibrillation return, to be again abolished by the resumption of the drug. To maintain normal rhythm a dose of not less than 1.2 gm. daily was at first required; latterly 0.8 gm. was found sufficient. In the third case there was no response whatever to quinidin in the doses given.

Japan Medical World, Tokyo

July, 1922, **2**, No. 7

*Prophylaxis and Serum Treatment of Spirochetosis Icterohemorrhagica. R. Inada.—p. 189.
Overwintering of House Flies. H. Kobayashi.—p. 193.
So-Called Para-Agglutination. Y. Watanabe.—p. 196.
*Internal Secretion of Pituitary and of Parathyroids. G. Izumi.—p. 199.

Serum Treatment of Spirochetosis Icterohemorrhagica.—Inada states that the effect of intravenous injection is more rapid than the subcutaneous injections. It was found that immune bodies appear in the blood within five minutes after intravenous injection, while it took eight hours by subcutaneous injection and then only incompletely. In three cases out of the forty-one there were chills and fever following the injections, and three patients had erythema all over the body. The fever usually appears after the first injection, but rarely after the second or third injection. Twenty c.c. of serum is enough for the slight or moderate case. The death rate is markedly lowered since the introduction of the intravenous injection of the immune serum from 30.6 to 19.1 per cent. The earlier the administration of the serum the better the result. It has marked influence on hemorrhages. The hemorrhages from the mouth cavity are reduced to about one tenth, and intestinal hemorrhages to one seventh, and the other hemorrhages are also reduced markedly. Abscess formations were seen in 24 per cent. of the untreated cases. When the serum is intravenously given within from six to seven days, abscess formation was reduced 4.9 per cent. in the second report and there was none in the third report. The production of immune bodies is more marked with intravenous injection than in the case of subcutaneous injection.

Internal Secretion of Pituitary and Parathyroids.—In order to determine the function of the endocrinous glands, especially of the pituitary and parathyroid, Izumi studied the reciprocal relations between the pituitary and parathyroid, the pituitary and thyroid, the thyroid and parathyroid, and the pituitary and gonads of forty-nine cats and rats. The parathyreoprivale rats and cats showed that the chromophil cells, especially basophils, decreased remarkably in number and size in pars anterior of the pituitary; while the chromophobe cells, especially transition and mother cells, increased in number. After the removal of the parathyroid, the pituitary body of the rat, in almost every case, became smaller; while that of the cat always enlarged from two to four times the normal size. The source of this enlargement is mainly the proliferation of the cellular element of the pars intermedia. In the thyreoprivale cats, enlargement of the pituitary was the rule, caused principally by the proliferation of pars anterior, partially through the hypertrophy of the lobulus peduncularis. The pituitary of castrated rats is larger than normal due to the appearance of the castratcells in pars anterior. The feeding of the parathyreoprivale rats with phosphorus cod liver oil and calcium lactate had no therapeutic influence on their opaque degenerating teeth. The total or partial removal of the thyroid or total castration had no clinical effect on the course of tetany.

Journal of Obstetrics and Gynaecology of the British Empire, Manchester

1922, **29**, No. 2

*Problems of Fetal Postmaturity and Prolongation of Pregnancy. J. W. Ballantyne and F. J. Browne.—p. 177.
*General Edema of Fetus. N. B. Capon.—p. 239.
*Glycosuria in Pregnancy. R. L. M. Wallis and J. P. Bose.—p. 274.
*Hyperthyroidism in Pregnancy. A. L. Robinson.—p. 296.
*Treatment of Pernicious Vomiting of Pregnancy. C. Oldfield.—p. 303.
Two Cases of General Vascular Carcinoma. J. B. Hunter.—p. 308.
Case of Acute Torsion of Uterus with Hematoperitoneum. B. Whitehouse.—p. 320.
Unilateral Blood Pressure Changes in Gynecology and Obstetrics. E. F. Cyriax.—p. 322.

Fetal Postmaturity.—Postmaturity of the fetus, Ballantyne and Browne state, is a condition which has a real existence, although it may not be possible to diagnose it from any one of its several anatomic or physiologic characters. It may, however, be recognized from the presence of a group of anatomic characters, such as excessive length, weight and ossification, and easy separability of the dura mater, especially when these are associated with advanced senile changes in the placenta and cord. It is impossible to state with certainty what are the causes of fetal postmaturity and the prolongation of pregnancy, although several conditions, both in the mother and in the unborn infant, have been alleged to be of etiologic importance; until the cause of causes of the supervention of labor at the normal time have been discovered it will be impossible, or at least unwise, to dogmatize about the cause of prolonged gestation. The clinical evidence on which the diagnosis of the prolongation of pregnancy is founded consists of a number of data none of which is absolutely free from fallacy; the most reliable is the determination of the size of the uterus made by a competent observer, using the bimanual examination on several occasions from the second or third month onward. While the length of the menstruation-delivery interval can be ascertained, there is no means of calculating the impregnation-delivery period to within eight or ten days, which represents the maximum insemination-impregnation period. It is impossible, therefore, to state the exact duration of any pregnancy. At the same time, the establishment of prolongation of pregnancy is a possibility and depends on analogy with what is known to occur in the lower animals (e. g., the cow) and on several clinical details in history and symptomatology, which, taken together, are sufficient proof; in medicolegal cases, in which the medical evidence is conflicting, moral considerations often play a determining part. It is impossible to fix an upward limit to the duration of pregnancy; but the greater the deviation from the normal, the stronger must be the direct and collateral evidence. The dangers both to mother and child of a prolonged pregnancy are undoubted; they are chiefly associated with difficulty in the passage of the child, and are greatly increased by reason of the unexpectedness of their emergence. Adequate antenatal supervision provides

a means by which the element of surprise can be eliminated from cases of postmature labor with immediate improvement in prognosis (material and infantile). The treatment is prevention of prolongation of pregnancy by means of induction of labor at or soon after the carefully calculated full term of gestation. The method by means of the administration of quinin followed by pituitary extract should be given a trial.

General Edema of Fetus.—Eight cases are cited by Capon. Maternal clinical histories, though similar in several respects, did not reveal any pathognomonic features. The mothers were generally about the middle of their child-bearing period; each had been previously pregnant at least twice. A mechanical cause for the edematous state was found only in one case. Histologically, hematopoiesis was the most prominent finding in the cases of nonmechanical origin. The spirochetes of syphilis were not found in any instance. The etiology of general fetal edema of nonmechanical origin remains obscure. It is probable that maternal toxins of unknown nature are causative. Histologic examination of the placentae shows that crowding of villi occurs and also that the overgrowth of the intravillous connective tissue has been out of proportion to the increase in the total epithelial surface. This placental change is dangerous to the fetus, for the chorionic vessels become compressed, fetal nutrition is impaired, and the increase in peripheral resistance in the placental vessels will cause a rise in fetal blood pressure, with cardiac hypertrophy. At the same time, the fetus responds to the impairment of nutrition by an increase in blood cell formation. When the pathologic changes have reached this stage, and exaggerated red cell formation within the fetus does not suffice to maintain healthy tissue metabolism, exudation of fluid into the hypertrophied placental villi and into the fetal serous sacs and subcutaneous tissue will occur. It is certain that the rise in fetal blood pressure will play a part in this process. There are several points of resemblance between polycythemia of the fetus, as observed in examples of general edema, and the rare disease of adult life, erythremia. Enlargement of the liver and spleen, the presence of erythroblasts and scanty myelocytes in the blood stream, and sometimes superficial hemorrhages, are common to both.

Glycosuria in Pregnancy.—Two types of glycosuria are met with in pregnancy, according to Wallis and Bose, (*a*) intermittent or transitory glycosuria; (*b*) severe glycosuria and true diabetes mellitus. The intermittent or transitory glycosuria shows certain characteristic features, and may be diagnosed by means of blood and urinary analysis, and the glucose tolerance test. A new method of estimation of sugar in the urine in normal and abnormal amounts is described, and the value of this method in cases of glycosuria in pregnancy emphasized. This new microchemical method represents a combination of the Bang and Folin and Wu methods with the elimination of most of the pitfalls peculiar to these methods. By means of the glucose tolerance test it is possible to correlate the occurrence of intermittent glycosuria of pregnancy with hyperactivity of the pituitary body. The application of blood and urinary analysis to cases of glycosuria in pregnancy renders it possible to differentiate between the two types. The importance of differential diagnosis is emphasized by the fact that the treatment of the two conditions is totally different, the intermittent or transitory type requiring little, if any, dietetic treatment.

Hyperthyroidism in Pregnancy.—Of fifteen cases cited by Robinson, eight women were delivered. All had normal labors, no bleeding or superinvolution, and no sign of thyroid disturbance has been seen in the babies. The clinical picture is, therefore, one of mild or atypical exophthalmic goiter. Later on the association of prolonged lactation and deficient nutrition suggested calcium depletion as an important etiologic factor, while certain of the clinical features (e. g., muscle cramps and increased nervous excitability) had a clear resemblance to tetany, which is itself a manifestation of calcium deficiency and parathyroid disease, and a common condition of pregnancy in some countries. On these grounds Robinson has employed parathyroid and calcium lactate for all cases, usually 1/10 grain of the former and 20 grains of the latter each night. Apart from the occasional complaint of nausea and itching in one or two cases, there have been no ill effects. He has permitted lactation in those patients who have not been seriously affected, and continued the treatment with calcium lactate, omitting the parathyroid. In the severer types Robinson has forbidden lactation and given calcium apd pituitary extract. The results have been encouraging. All these patients have improved; the eye signs become less marked and the general health and muscle tone have improved.

Pernicious Vomiting of Pregnancy.—His clinical experience leaves Oldfield in no doubt that all cases of pernicious vomiting of pregnancy are of neurotic origin, and that the more severe cases are later or advanced stages of neurotic vomiting. These patients can be cured quickly, as a rule, and with a high degre of certainty by the removal of the patient to a hospital or nursing home and by feeding on ordinary diet. Induction of abortion is seldom or never necessary.

Lancet, London

Aug. 19, 1922, **2**, No. 5164

Influence of Light in Prevention and Cure of Rickets. A. F. Hess.—p. 367.
*Value of Respiratory Exercises. C. B. Heald.—p. 370.
*Vital Capacity Constants Applied to Study of Pulmonary Tuberculosis. G. Dreyer and I. S. T. Burrell.—p. 374.
*Bed Isolation of Cases of Infectious Disease. C. Rundle.—p. 376.
Experience at Plaistow. D. MacIntyre.—p. 377.
*Operation for Removal of Living Extra-Uterine Child at Full Term. E. O. Croft.—p. 380.
Fourth Disease or Parascarlet. K. Simpson.—p. 381.
*Case of Spontaneous Short Circuit. E. C. Bevers.—p. 382.
Case of Diphtheria Complicated by Hemiplegia with Aphasia. H. G. Smith.—p. 282.

Value of Respiratory Exercises.—Respiratory exercises, according to Heald, are only of real value (1) if the exact nature of the abnormality it is desired to remove is known and if the abnormality presents no insuperable mechanical obstruction to improvement; (2) if a measure of this abnormality has been secured and if the progress of treatment is checked and followed by remeasuring; (3) if the treatment is able to combine and utilize knowledge of electrotherapeutics, massage, and remedial exercises so that accurate and detailed prescriptions may be drawn up based on a sound knowledge of the errors of each individual case.

Vital Capacity in Pulmonary Tuberculosis.—Conclusions arrived at in 1920 with regard to the value of vital capacity (V. C.) determination in cases of pulmonary tuberculosis are reiterated here by Dreyer and Burrell. There is a definite decrease in V. C. Improvement in the clinical condition of the patient is found to be accompanied by an increased V. C., while an advance of the disease results in a decreased V. C.; the determination of the V. C. is useful for the classification of cases. As an aid to diagnosis even a single, but more particularly a repeated, examination of the V. C. of doubtful cases will also prove useful. A systematic study of the V. C. in its proper relationship to body size has given important information as to the beneficial effects of different treatments of pulmonary tuberculosis. After many thousand observations the authors have seen no ill effect from taking V. C. It is far less strain to the patient than even a mild attack of coughing.

Bed Isolation of Infectious Diseases.—Rundle says that an inspection of the wards and case records has made it very clear that the incidence of secondary infection is considerably less with bed isolation work than that commonly observed in a one disease ward. The administrative and economic advantages are equally obvious.

Operation for Removal of Living Extra-Uterine Child at Full Term.—The pregnancy in Croft's case appears to have originated in the left fallopian tube with erosion and extension into the broad ligament and subsequent perforation of the posterior layer of the broad ligament into the peritoneal cavity, the fetal membranes having remained intact.

Spontaneous Short Circuit of Intestine.—Bevers reports a case of ulceration of a carcinoma of the colon into the small intestine producing a short circuit.

Practitioner, London

Jaundice in New-Born. H. Rolleston.—p. 1.
Summer Diarrhea in Infancy. W. J. Pearson.—p. 5.
*Constipation in Infancy and Childhood. E. Pritchard.—p. 16.
*Vomiting in New-Born and Young Infants. C. P. Lapage.—p. 24.
Rickets. H. Thursfield.—p. 34.
Proprietary Foods and Milks. E. Cautley.—p. 44.
Orthopedic Points in Childhood. H. A. T. Fairbank.—p. 51.
Aural Sepsis in Infancy and Childhood. W. Stuart-Low.—p. 57.
Skin Diseases of Infancy and Childhood. A. M. H. Gray.—p. 67.
Heart in Severe Blood Diseases of Childhood. F. J. Poynton.—p. 79.
Sleeplessness in Infants. C. E. Sundell.—p. 89.
Spontaneous Reduction of Intussusceptions. D. C. L. Fitzwilliams.—p. 93.
Roentgen Ray in Diagnosis of Gastro-Intestinal Disease in Childhood. H. M. Berry.—p. 99.

Treatment of Constipation in Infancy.—If in breast-fed infants constipation continues after errors of quantity and quality in the food have been adjusted, the educational regimen is reinforced by Pritchard by a small daily dose of the following aperient mixture: tincture of aloes, 3 minims; tincture of belladonna and tincture of nux vomica, each 1 minim; syrup of senna, ½ dram; syrup of figs, 1 dram. As the condition improves, the dose may be gradually "tailed off" until a daily action results without such artificial aid. If the motions still remain unduly hard, petroleum emulsion may be substituted in this mixture for the syrup of figs, or it may be given independently in doses of from 1 to 2 teaspoonfuls after each feeding. This line of treatment is the antithesis of the usual methods employed, which, by their very violence, bring about dilatation of the bowel or dislocation of the delicate mechanisms concerned in the function of defecation.

Vomiting in New-Born.—Lapage classified the causes of vomiting as: metabolic, toxemic (secondary to infection); physical and mechanical; functional and nervous, and injury, shock, nervous organic. If the vomiting is metabolic in nature, a period of starvation, the length of which depends on the severity of the symptoms, must be adopted, and, in the meantime, the dietetic error eliminated. If there is overfeeding with breast milk, the mother's diet must be revised, and, if necessary, the breast pump used to diminish the amount taken by the infant. For protein vomiting sodium citrate (2 grains to 1 ounce milk) is a useful remedy, though it causes constipation. Peptonizing or the use of predigested foods may help. Finally, resort may have to be made to whey and meat-juice, or whey and albumin-water. Sometimes a sweetened, condensed milk is useful before coming down to whey. Whey mixtures are hardly sufficient to nourish a baby for long, and after four days, or, at the most, a week, it is better to find some more sustaining food. For fat vomiting, which is common, milk and water mixtures without any added cream can be used. One of the most useful mixtures for outpatient babies is milk and water, sterilized for thirty minutes and sweetened, with no cream but with extra fat in the form of emulsion of cod liver oil, half a teaspoonful three times a day to infants aged from 6 months to 1 year. Many babies who vomit on a full fat mixture will take this well. It is important to treat vomiting by methods other than the use of medicines. Lavage is of great use in vomiting, washing out the stomach with a weak sodium bicarbonate solution.

Archives de Médecine des Enfants, Paris

August, 1922, **25**, No. 8

*Protracted Slight Fever in Children. J. Comby.—p. 449.
*Serotherapy in Dysentery in Children. M. de Bichler.—p. 464.
*Staphylococcus Septicemia. M. Laurent and E. Abel.—p. 478.
The Equipment for the Fight Against Tuberculosis in France. J. Comby.—p. 486.

Protracted Slight Fever in Children.—Comby refers to temperatures up to 38 C. (100.4 F.) toward the close of the day, or in the morning, noted for weeks, months or even years. A similar study of this subject by Comby was reviewed June 10, 1922, p. 1853. The assumption of a "growth fever" must be abandoned. Some unrecognized infection or digestive autointoxication or instability of the thyroid is usually responsible. Three cases have been published in which a cure was realized under thyroid treatment alone.

Serotherapy in Dysentery in Children.—De Bichler extols the advantages of giving a polyvalent serum at once in every case that suggests the possibility of dysentery, while waiting for bacteriologic differentiation. In her 129 cases of diarrhea suggesting dysentery during the last few years, the condition was very grave in twenty-one, and three were practically moribund when first seen. The others all recovered under the serotherapy.

Staphylococcus Septicemia.—Laurent and Abel report the case of a boy of 9 with vague fever and a painful inflammatory process in the right hip joint. The knee had been transiently affected first. The fourth day general symptoms of septicemia and meningitis developed, and the necropsy findings confirmed the assumption of staphylococcus septicemia responsible for these two four-day phases. The mortality of staphylococcus septicemia has been estimated at 75 per cent. at least, but a few cases of recovery under vaccine therapy justify some hope in this line.

Gazette des Hôpitaux, Paris

July 29, 1922, **95**, No. 59

*Anaphylaxis to Radiant Energy. Foveau de Courmelles.—p. 954.

Anaphylaxis to Roentgen and Radium Rays.—Foveau de Courmelles presents arguments to prove that the susceptibility of certain persons to roentgen burns or reactions with chill, high fever or actual shock, after exposure to the roentgen or radium rays, is a manifestation of radio-anaphylaxis. A typical instance of this is the case of a manufacturer of roentgen apparatus who was finally affected by the rays. Although apparently cured, a Crookes tube could not be set in action anywhere in the factory without his experiencing pains, and he had to sell his business. The eight fatalities reported from England among radiologists outweigh the thousands of cases in which radiant energy is borne without harm. At the necropsy of the radiologist, Tiraboschi, who died at Bergamo in 1914, the blood was found extremely pathologic. A number of instances of anaphylactic disturbances after roentgen exposures are related, although at the time no one thought of explaining them as anaphylaxis. He says that any kind of irradiation is liable to sensitize against other forms. There is a prospect of being able to desensitize against this radio-anaphylaxis with minute doses, or by ingestion of photosensitive substances, like quinin or eosin. He exclaims in conclusion, "This radio-anaphylaxis is a new world opening before us."

Journal de Radiologie, Paris

August, 1922, **6**, No. 8

Radium Therapy of Cancers. S. Laborde.—p. 349.
Deep Radiotherapy. R. Ledoux-Lebard.—p. 361.
Medical Applications of Diathermy. Mme. G. de Brancas.—p. 364.
*Injection of Gas to Outline the Kidney. Delherm, Laquerrière and Morel-Kahn.—p. 369.
Modern Methods of Electrodiagnosis. A. Strohl.—p. 375.

Injection of Gas to Outline the Kidney.—Carelli and Sordelli's method of injecting gas to outline the kidney was described in THE JOURNAL, Oct. 1, 1921, p. 1108.

Nourrisson, Paris

July, 1922, **10**, No. 4

Multiple Tuberculous Osteitis in Infants. A. Broca.—p. 209.
*Rachitis. A. B. Marfan.—p. 228.
Mothers' Homes. L. Bernard.—p. 240. Idem. A. B. Marfan.—p. 245.
*Infants of Tuberculous Parents. R. Debré and L. Laplane.—p. 249.

Rachitis.—In this third of Marfan' series of four lectures on rachitis, he discusses the symptoms and lesions which accompany the bone changes, the course, the duration, the outcome. He also compares congenital with tardy rachitism. He ascribes to the latter essential scoliosis, genu varum and valgum and flatfoot in older children.

Infants of Tuberculous Parents.—Debré and Laplane have compiled the complete data in 127 families in which the mother was tuberculous. The proportion of children born normal in every particular was as large as in nontuberculous families in all, except when the mother's tuberculosis was grave and progressing, apparently speeded up by the pregnancy. In these conditions, premature delivery occurred in 43 per cent. of the cases, and the children were below the average weight. They reiterate that from every point of view heredity of tuberculosis is nonexistent.

Paris Médical

July 22, 1922, 12, No. 29

*Bismuth in Treatment of Venereal Diseases. F. Balzer.—p. 81.
*False Incontinence in Children. R. Morichau-Beauchant.—p. 83.
Localization of Spinal Cord Lesion by Reflexes. Lévy-Valensi.—p. 89.

Bismuth in Treatment of Syphilis and Gonorrhea.—Balzer recalls his publications on the toxicity of bismuth in 1889.

False Incontinence of the Sphincters in Children.—Morichau-Beauchant describes a number of cases, out of a much larger experience, with what he calls paragenital autoerotism. The children hold back their urine or their stools on account of a pleasurable sensation from the excitation of the mucous membrane in the anus and bladder or urethra. This voluntary holding back is finally overcome by the imperious demands of nature, and the child's garments are soiled. The children are not degenerates, and this pseudoincontinence is merely a survival of the auto-erotism of the infant. He adds that by watching monkeys we can appreciate the heavy load of coprophile and auto-erotic heredity with which we are burdened. The weakening of the sexual instinct and the return to auto-erotism explains some of the phenomena observed in the senile. The children may be partially unaware of their voluntary repression of their impulses. The physician must explain kindly to the child that he does it on purpose, and show him how the yielding to this pleasurable sensation is reprehensible and degrades him in his own eyes and disgraces him before others. The parents are usually harder to manage than the children; they are either so prudish that they refuse to believe the physician's explanation, or they judge the child as if he were an adult and the prey of the worst perverted instincts. The parents have to be impressed with the fact that a bad habit is not corrected by punishment, and that only gentle means should be employed. "Parents who cannot comprehend this are preparing sad tomorrows for themselves." The paragenital autoerotism generally disappears of itself in time, but these children require special supervision as this tendency may return in a graver form later unless warded off by wise training.

Presse Médicale, Paris

July 22, 1922, 30, No. 58

*Lesions of the Aorta. L. Bard.—p. 621.
*Dyspepsia and Erythremia. M. Loeper and G. Marchal.—p. 623.
*Multiple Sclerosis. J. Mouzon.—p. 624.

Lesions of the Aorta.—Bard discusses the suppression of pulsation in the left arm, and the existence of two opposed circulatory regimes in cases of disease of the aorta. He explains that the pulsability of the arteries is only one factor in the progression of the blood.

Gastric Disturbances in Erythremia.—Loeper and Marchal compare five cases of polycythemia in which digestive disturbances dominated the clinical picture. The symptoms in some simulated gastric ulcer; in one case there were intestinal hemorrhages. The erythremia had been overlooked in all, and the congestive, vasomotor and nervous disturbances had been ascribed to the dyspepsia, but they had proved refractory to the entire arsenal of measures to act on the stomach. All benefited notably from small venesections and sodium citrate. Every dyspeptic inclined to plethora should always have his blood count taken and the viscosity measured. In three of the five cases, the stomach bled readily, even at the slightest contact with the stomach tube. This readiness to bleed is an important sign of this gastric erythremia. Treatment should leave the stomach alone, and aim to rinse out the blood, by drinking water profusely between meals. Diuretics and purges exaggerate the viscosity of the blood, while sodium citrate reduced it by 50 per cent. in a few days in their cases. They gave to 3.4 or 6 gm. a day; it aids in combating gastric acidity as well as in reducing the viscosity, while it has a mild cholagogue and laxative action. The diet should be restricted mainly to white meat, milk and green vegetables, avoiding foods rich in iron.

Multiple Sclerosis.—Mouzon analyzes recent literature on the infectious origin of disseminated sclerosis. He remarks that the conception of this disease as a spirochetosis opens new fields for its study and treatment.

Revue Médicale de la Suisse Romande, Geneva

April, 1922, 42, No. 4

Action of Quinin and Quinidin on the Heart. Turrettini.—p. 209.
*Tardy Inherited Syphilis in Adults. C. Du Bois.—p. 219.
*Effect on Diabetics of Lumbar Puncture. G. Bickel.—p. 231.
Invagination of Intestine Due to Ascarid. Dunant and Kocchlin.—p. 233.
Amebic Hepatitis. J. Morin.—p. 235.
Present Status of Congenital Heart Disease. Saloz.—p. 243. Cont'd.

Tardy Inherited Syphilis.—Du Bois reports some sensational cases in which apparently healthy adults developed symptoms of advanced syphilis as the first recognized manifestations of inherited syphilis. Serologic tests may be negative, and only the prompt cure under treatment for syphilis may clear up the diagnosis. He insists that it is far more common than generally supposed. A positive serologic test from latent inherited syphilis, before marriage, might save families from shipwreck when the positive response is discovered later and ascribed to an extraconjugal source. He adds that a serologic test in many supposed tuberculous lesions in glands and joints might save operations and tedious courses of treatment.

Lumbar Puncture in Diabetes.—Bickel reports a drop in the sugar in the urine after lumbar puncture from 83 to 38 gm. per thousand in a diabetic woman of 73. The sugar content of the blood, fasting, also dropped from 3.39 to 2.25 per thousand. Lhermitte recently reported an analogous observation. His patient was a man of 76, and the glucose in the urine dropped temporarily after lumbar puncture from 28.45 gm. to 0.72 gm. while the output of urine was only 1 liter instead of the preceding 2.5 liters.

May, 1922, 42, No. 5

Classification and Treatment of Diabetes. Labbé.—p. 273.
Present Status of Epilepsy and Its Treatment. F. Machon.—p. 283.
*Salicylate Test of Liver Function. M. Roch.—p. 291.
Glandular Disease of Syphilitic Origin. J. Golay.—p. 296.
Electrolysis in Treatment of Eyes. P. Fietta.—p. 298.

June, 1922, 42, No. 6

Epilepsy and Alcohol. V. Demole.—p. 337.
Guaiac Test for Occult Blood. G. G. Moppert.—p. 343.
The Colloidal Benzoin Test in Neurosyphilis. E. Benveniste.—p. 353.
Present Status of Slow Endocarditis. P. Gautier.—p. 359.
The Syndromes from Disease of Central Grey Nuclei. G. Bickel.—p. 365.

Sodium Salicylate Test of Liver Functioning.—Roch says that a normal liver transforms 4 cg. of sodium salicylate, taken an hour after the first breakfast, so that none can be refound in the urine during the five following hours. With insufficiency of the liver, there is a positive response when the urine is added, a drop at a time, to a 1 per cent. solution of ferric chlorid: A violet cloudy zone at the contact of the fluids is the positive reaction. The salicylate induces formation of glycuronic acid in the liver, and hence the test is based on the same principle as Roger's test, although so much simpler. The findings were constantly reliable in the 100 patients tested to date.

Chirurgia degli Organi di Movimento, Bologna

July 1922, 6, No. 3-4

*Congenital Deformity of Hands and Feet. L. G. Gazzotti.—p. 265.
*Circumscribed Ossification After Trauma. G. Ferrarini.—p. 281.
Humerus Varus in Cretins, Etc. A. Merlini.—p. 329.
Apparatus for Fracture of Arm Bones. G. Toschi.—p. 345.
*Surgery of Spinal Nerve Roots. G. Serra and A. Ferraro.—p. 363.
Classification of Contracture and Ankylosis. M. Sarcevic.—p. 421.
*Wounds of Blood Vessels. F. Rossi.—p. 425.
Hemangioma of Rectus Muscle. E. Angeletti.—p. 449.
*Neurotrophic Disturbances. N. V. Bedarida.—p. 457.
Congenital Luxation of Head of Radius. A. Steindler.—p. 483.

Deformity of Hands and Feet.—The unusual deformity of both hands and feet in the two cases described was alike in both. They were father and son, and the brother of the father and this brother's daughter presented the same anomalies, as shown in the fifteen illustrations.

Ossification After Trauma.—In Ferrarini's nine cases the patients were all young. In only five of the cases was the elbow involved. The trauma had been a contusion, sprain or luxation, and soon after there had been more or less swelling of the part which then slowly retrogressed, the region sometimes regaining its normal outline, but usually

a hard lump could be palpated. The swelling was deep in the tissues, indolent and hard; even as early as the sixteenth hour, the tumefaction felt hard as bone, although casting only a trace of a roentgen shadow. Even after the lapse of two years it is impossible to estimate the extent of the disability that may be entailed by these osteomas. They develop as the terminal expression of a state of chronic irritation in the interstitial connective tissue, from the stretching and strain on the soft parts from the trauma. Repeated mild trauma seemed to be more harmful in this respect than a single severe injury. Serial roentgenoscopy showed the osteoma growing smaller but progressively more opaque at the periphery. An operation was proposed in one case but refused, and this was the only case in which normal function of the elbow was finally restored. The others were given workmen's compensation for 20 per cent. disability.

Surgery of Nerve Roots.—This illustrated communication from two of the institutes of the University of Sassari presents evidence that it is possible and feasible, in dogs, to join the peripheral stump of a spinal nerve root with the central stump of the spinal nerve root just above. Three nerve roots were thus transplanted in a series, the upper one thus restoring motor function to a leg previously paralyzed by severing the nerve root or severing the spinal cord. Serra and Ferraro are convinced that these experiments justify the hope of analogous successful intervention in clinical cases of paralysis from spinal cord lesions. The only American work in this line mentioned in the bibliography is C. H. Frazier's in THE JOURNAL, Dec. 21, 1912, p. 2202, and his book on surgery of the spinal cord (1918).

Wounds of Vessels.—Rossi reports nineteen operative cases and three in which no operation was attempted.

Neurotrophic Disturbances.—Bedarida refers to neurotrophic disturbances consecutive to war wounds or amputations.

Riforma Medica, Naples

July 3, 1922, **38**, No. 27

*Treatment of Trichophytosis. C. Maderna.—p. 625.
*Drainage in Pelvic Cellulitis. L. Girolamo.—p. 629.
Copper in Treatment of Cutaneous Sarcomatosis. A. Tomaselli.—p. 631.
Soluble Tuberculous Toxin in Treatment of Tuberculous Dermatitis. C. Feluge.—p. 633.
Illusions and Realities of Radiotherapy. V. Maragliano.—p. 634.
Treatment of Traumatic Injury of Vertebrae. E. Aievoli.—p. 636.

Trichophytosis.—Maderna gave progressive doses by the vein of a mixture of 1 gm. iodin and 2 gm. of potassium iodid in 300 gm. of distilled water. His dose was from 1 to 5 c.c. in 10 c.c. of water on alternate days. The lesion healed and disappeared under this more rapidly and permanently than with any other treatment known.

Drainage with Pelvic Cellulitis.—The purulent affection had developed after an operation for a suppurating inguinal hernia, and Girolamo opened a way for the subperitoneal pus by removing the coccyx. A complete cure followed, after the suppurative process had been weakening the man for eighteen months. The drainage through the inguinal canal had never been effectual, and the suppuration had invaded all of the subperitoneal tissue in the iliac fossa and throughout the pelvis.

Brazil-Medico, Rio de Janeiro

July 1, 1922, **2**, No. 26

*Protein Therapy in Typhoid Fever. R. Kraus.—p. 1.
*Perforation of Esophagus into Pleura. Cardoso Fonte.—p. 4.
The Public Health Campaign in Brazil. Decio Parreiras.—p. 6.

Protein Therapy in Typhoid.—Kraus refers to his antiserum which has been in use for a number of years in treatment of typhoid. It is effectual only when given early, and hence can seldom find application in the hospitals. He experimented later with vaccines, and found that the colon bacilli proved as effectual as the typhoid bacilli. The mortality in 81 cases treated by this heterobacteriotherapy was 13.5 per cent. Injection of other protein substances, not bacterial, gave equally favorable results. He here relates 54 cases in which normal beef serum was used for this protein therapy, with a mortality of 12.8 per cent. Colloidal silver was tried in other cases, the result of all these various treatments being the recovery of all but 12.7 per cent. of the 166 typhoid patients. None of the numerous theories as to the action of protein therapy is generally accepted, but all agree that its effect is indirect, stimulating the cells to produce the defensive substances to combat micro-organisms and their toxins.

Perforation of Esophagus Into Pleura.—Fonte reports a case of suppuration in the pleura explained by a perforation in the esophagus, 2 cm. above the cardia, probably of syphilitic origin. The perforation had been ascribed to the stomach but nothing was found at the laparotomy, and the man soon died. In a second case, the suppuration in the pleura kept up for two years and three months, unmodified by several operations until the end of this period when a clinical cure was realized. Towards the last the man tasted in his mouth the fluid being injected into the pleural cavity, which explained the process as perforation of the esophagus. There had been a contusion of the left thorax two months before the pleural focus was diagnosed.

Semana Médica, Buenos Aires

June 1, 1922, **1**, No. 22

*Treatment of Anthrax. R. F. Vaccarezza, F. F. Inda and R. Posse.—p. 865. Cont'd.
*Gastro-Intestinal Disturbances in the Tuberculous. A. Cetrángolo.—p. 908.
*Modification of Fixation Reaction. W. Karmin.—p. 909.

Protein Therapy of Anthrax.—This long study of hundreds of cases of anthrax treated by various methods asserts that normal beef serum proved as effectual as the specific antiserum, but that its action is merely that of protein therapy. Consequently, the beef serum can be substituted by some substance which does not sensitize, and does not induce serum sickness. Peptone seems best adapted for the purpose, and it proved so satisfactory that in the last six months it has been used exclusively in all cases, even those with septicemia. Nolf's technic is followed: an intragluteal injection once or twice a day of 30 c.c. of a 5 per cent. solution of peptone: 5 gm. of Witte's peptone with 0.5 gm. of sodium chlorid in 100 gm. of distilled water. The full data of forty-three cases thus treated are appended. Further details and figures were given in the Buenos Aires Letter, recently, on page 755.

Calcium Chlorid in Treatment of Gastro-Intestinal Disturbances in the Tuberculous.—Diarrhea and abdominal pains were cured by five daily injections of 5 c.c. of a 10 per cent. solution of calcium chlorid in several tuberculous patients. In others the tendency to vomit was effectually combated by ten or twelve injections. No effect was apparent in two of nineteen cases reported from a sanatorium, but all the others showed marked benefit.

Modification of Serologic Test.—Karmin uses three tubes, and notes the time required for total hemolysis. Each serum takes a different and exclusive time for this. When hemolysis is complete in the third tube, if it is also complete in the first and second, the test is negative.

June 8, 1922, **1**, No. 23

*Loose Bodies in Joints. R. Rodriguez Villegas.—p. 921.
*Losses of Calcium in the Pregnant. Remigio Bustos Morón.—p. 922.
Treatment of Leprosy. Orreste Calcagno.—p. 928.
*Source of Error in Serologic Tests. César Claria.—p. 969.

Loose Bodies in Joints.—Rodríguez Villegas comments on the annoying way in which loose bodies in joints with an effusion float out of reach during the operation. This can be avoided by taking the foreign body between the left thumb and forefinger before beginning the incision and driving through the skin into the foreign body—under local anesthesia—a sharp awl which holds it firm through all the succeeding manipulations. The article is illustrated.

Decalcification in the Pregnant.—The calcium content was below 8 mg. in 100 c.c. of blood in 3 of the 56 pregnant women tested, and below 9 in 31, and it reached 10 only in one of 21 others. In the 2 cases of eclampsia, the one that proved fatal had 8.05 mg., and the other, who recovered, had 8.94 mg. The 10 nonpregnant women had from 8.82 to 9.70 mg. No connection could be detected between the manifestations of pregnancy intoxication and the calcium content of the blood.

Source of Error in Serologic Tests.—Clariá is chief of a laboratory of the public health service, and he complains that the specimens of blood sent in for examination always contain more or less water left from rinsing the syringe and the container. Even this small amount of water lakes the blood and interferes with the tests.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **126**, No. 1. Kümmell Festschrift, Second Half

Analogon in Women to Varicocele in Men. F. Engelmann.—p. 218.
*New Standpoints for Treatment of Cancer. Kotzenberg.—p. 226.
Minor Technical Points. Bertelsmann.—p. 237.
Tumors and Pseudotumors of the Orbit. T. Ringel.—p. 239.
Topography of Cervical Ribs. O. Aichel.—p. 248.
Voice After Removal of One Vocal Cord. Albanus.—p. 258.
*Intrathoracal Esophagoplasty. H. Kümmel, Jr.—p. 264.
*Antethoracal Esophagoplasty. H. v. Engelbrecht.—p. 278.
*Surgical Treatment of Sciatica. Graff.—p. 287.
Origin of Hydronephrosis. O. Rumpel.—p. 296.
Torsion of Intra-Abdominal Organs. Kehl.—p. 310.
Roentgen Localization of Foreign Bodies. A. Wepfer.—p. 317.
Foreign Bodies in Gastro-Intestinal Tract. Tillmann.—p. 320.
Toxic Action from Lead Bullet in the Tissues. F. Bonhoff.—p. 324.
Idem. O. Schumm.—p. 333.

Cancer Research.—Kotzenberg explains the premises on which he bases the treatment of cancer with a serum obtained by injecting rabbits with chromatin. The rabbits develop defensive substances against this excess of chromatin.

Intrathoracal Esophagoplasty.—Kümmell reports two cases as a contribution to this subject, although the operation proved a failure in both cases. They teach that a reliable differential pressure apparatus is indispensable. The feasibility of mobilizing the stomach and drawing it up to suture it to the oral stump of the esophagus has been amply demonstrated, as also the superior advantages of this technic in many respects. It takes comparatively little time; does not require a mutilating operation for access; the suture is made outside the chest, and the whole procedure is complete at one sitting.

Antethoracal Esophagoplasty.—Engelbrecht reports a case in which twenty different operations were required in turn. The mistakes in this case confirm the advantages of forming a tube from skin, reaching from the larynx to the fistula into the stomach. As soon as this is healed, the upper end of the tube is sutured to the upper stump of the esophagus. A rubber tube is used to connect the skin tube with the stomach fistula. When entirely healed, a skin flap tube is made to bridge this gap, and the rubber tube is discarded.

Surgical Treatment of Sciatica.—Graff exposes the sciatic nerve at its emerging point, and mobilizes the nerve centrad as far as possible, and then stretches it gently. This has always cured rebellious sciatica in his experience, and he reiterates that it is an entirely harmless measure. He has applied it in seventeen cases, and says that it is reliable. He does not attempt to separate the fibers of the nerve but merely loosens it with his fingers up to the sacral foramen, and then stretches it, but not very much. Bleeding should be scrupulously checked so no hematoma can develop. He has not attempted to drain in his later cases. A hematoma formed in one instance, but it was aspirated the fourteenth day without harm. The sciatica was cured at once but the patients complained for a time of numbness. The altering of the relations between the nerve and its environment is evidently responsible for the benefit, rather than the stretching itself.

Medizinische Klinik, Berlin

July 16, 1922, **18**, No. 29

*Cesarean Section. M. Henkel.—p. 917.
*Hypersecretion in the Stomach. N. Jagic and G. Spengler.—p. 920.
*To Enhance Action of Drugs on Nervous System. A. Löwenstein.—p. 924.
Enlargement of Spleen in Incipient Syphilis. B. Peiser.—p. 925.
Treatment of Cracked Nipples of Nursing Mothers. E. Bedő.—p. 928.
*The Finer Structure of Tissues. G. Bucky.—p. 930.
Hernia from Standpoint of Workmen's Compensation. Engel.—p. 934.
Rudiments of Obstetrics. E. Runge.—p. 936. Cont'n.
Recent Literature on Infant Feeding. Rietschel.—p. 938.

Cesarean Section.—Henkel deplores that we have no certain means for determining positively whether a case is infected or not. He regards abdominal, intraperitoneal section of the cervix as the method of choice, but says that the cervix must be dilated enough to allow drainage of lochia. He operates through a median incision, slitting the vesical peritoneum across and pushing the bladder and peritoneum downward as far as possible. The incision is made in the middle of the cervix and the inferior segment of the uterus is thus opened up. If there is difficulty in extracting the child, a small forceps can be used. With transverse presentation it may be necessary to carry the incision farther up, and the possibility of this is one of the great advantages of making the section in the cervix rather than in the body of the uterus. The minute the child is extracted and the cord cut, he begins to suture the incision at once, working up from the bottom. When the incision is half sutured, he separates the placenta by Credé expression from without, and draws it out through the upper half of the wound. The suture of the cervix incision is facilitated by the assistant's pressing the uterus up from without, compressing it through the abdominal walls. He closes the incision with button sutures about 1 cm. apart, not passing through the mucosa. The broad flat expanses of serosa are sutured together with a running catgut suture, and the peritoneum is rinsed out with ether the last thing before suturing the abdominal wall. In suturing the uterus each layer of tissue must be coaptated separately, not allowing any mucosa to get into the muscle suture, for example. He never raises the pelvis, but gives an intramuscular injection of ergot beforehand, to promote elastic contraction of the uterus. He had two deaths under chloroform in cesarean section, and since then uses ether alone.

He adds that difficult, tedious delivery by the natural route may be more exhausting for the woman than a cesarean section. With the technic described, the results have been so satisfactory that he extends the indications now to cases of prolapse of the cord, transverse presentation with one arm protruding and other conditions in which there is little probability of saving the child by other means. With placenta praevia, experience has shown that cesarean section spares the woman further loss of blood, but the viability of the child and the seat of the placenta are the decisive factors here, especially with the centralis type in a primipara. Under these conditions, the earlier it is done the more favorable the outlook. The hemorrhage is more easily controlled with cesarean section than otherwise, as a suture thread can be run around the bleeding vessels and the aorta can be compressed with the fingers. He never trusts to instrumental compression, as the aorta is apt to slip to one side, while the artery can be compressed with the hand wrapped in gauze introduced into the peritoneum. In eclampsia he has noted that the patients are predominantly primiparae and the pelvis is often of the generally contracted type. The severity of the eclampsia may justify the intervention, and the incision may have to be in the body of the uterus.

Excessive Secretion in the Stomach.—This is a lecture in a postgraduate course, and a distinction is made between hypersecretion, hyperacidity and hyperchlorhydria, and between the digestive and the continuous forms of each, and their causes. What used to be called idiopathic hypersecretion is now known to be, Jagic and Spengler say, "an excitative secretory disturbance alone or in combination with spasms in stomach and bowel from a functional neurosis modifying both the secretory and motor functions."

Treatment of Metasyphilitic Disease of the Nervous System.—The cerebrospinal fluid does not take up drugs out of the blood to any extent, and this is the reason why intravenous medication has so little effect in neurosyphilis. To force the fluid to take up more of the drug, Löwenstein advocates lumbar puncture at the same time as the intravenous injection of the drug. To enhance the effect still more, he suggests to blow air into the spinal canal. This induces a mild, brief meningitis from the irritation. In case of a tabetic affection of the optic nerve he would supplement this with direct local irritation of the eye. For this, a strong solution of sodium chlorid might be given in subconjunctival injection, with or without aspiration of the vitreous body. By these means for "biologic enrichment of the cerebrospinal

fluid" we may be able to arrest incipient degeneration of the optic nerve and other similar manifestations of neurosyphilis.

The Finer Structure of Matter.—Bucky describes a method for obtaining spectrograms of the roentgen rays, and states that with this we are able to study atoms and molecules beyond the highest magnifying power of our microscopes.

Münchener medizinische Wochenschrift, Munich

June 30, 1922, **69**, No. 26

The Causative Agent in Scarlet Fever. R. Degkwitz.—p. 955.
Protein from Tubercle Bacilli in Diagnosis of Tuberculosis. E. Toenniessen.—p. 957.
Threshold Irritative Vaccinotherapy in Staphylococcus Affections. E. Keining.—p. 960.
Lessened Central Perception of Color Distinctions Following Physical Exertion. Boehmig.—p. 962. See Berlin Letter, page 909.
Pathogenetic Significance for the Whole Organism of the Respiratory Tract. L. Hedbauer.—p. 963.
The Azure Granules of Michaelis and Wolff and Their Normal Qualitative Blood Picture According to Arneth. Arneth and Stahl.—p. 963.
Psychophysical Constitutional Types. W. Jaensch.—p. 964.
Remarks on Undernutrition in Infancy. F. Hamburger.—p. 965.
The Foundation in Plastic Surgery. J. F. Esser.—p. 966.
Malformation of Peritoneum as Factor in Ileus. W. Haas.—p. 968.
*Saccharin Poisoning. P. Heilmann.—p. 968.
*Calcium Chlorid in Cocain Poisoning. F. Fabry.—p. 969.
Epinephrin Poisoning. F. Kleeblatt.—p. 970.
Indications for Ball Insoles. E. Petco.—p. 970.
*Radium Emanations in Migraine. S. Loewenthal.—p. 971.
"The Mechanistic and the Teleologic Theories of Life." Reply. F. Bruck.—p. 972.
Treatment of Whitlow. A. Krecke.—p. 973.

Saccharin Poisoning.—Heilmann reviews accounts in the literature of saccharin poisoning, and reports his own observations on an undernourished rachitic boy of 9 who helped himself to 200 saccharin tablets weighing 0.07 gm. each and containing 0.0175 gm. each of refined saccharin. The remainder of the tablets consisted of bicarbonate of soda. In the absence of his parents, the boy dissolved the 200 tablets in something more than a liter of water and drank the solution, although it tasted bitter. That evening he complained of pains in the stomach before going to bed. He slept during the night and was awakened to go to school. While dressing he became dizzy and reeled about the room like a person intoxicated. He was put to bed and a confession of his bad conduct was made. Then he sat up in bed and in a loud voice, with accompanying gestures, imitated the playing of a band and the tones of various instruments. He did not respond to questioning. The parents applied cold compresses to the heart and in doing so noticed that numerous large water blisters had appeared on his chest and back. He then vomited his breakfast and toward noon vomiting occurred again. During the next few days the blisters broke open and the patient began to feel normally well, and fully conscious. Ten days after the accident he was admitted to the hospital. Here, across the chest and the upper abdomen, a superficial, continuous erythema of varying intensity was noted. From the middle of the left shoulder to the navel ran a narrow strip that was intensely red. On the whole surface there were many vivid red spots with the edges of the epidermis thickened but showing no coating. Scattered over the whole chest were dry, dark-brown shreds of epidermis. The back presented much the same appearance. Heilmann estimates that the boy must have ingested 14 gm. of soluble saccharin, equal to 3.5 gm. of refined saccharin. This is, as far as his knowledge of the literature goes, the largest single dose ever taken. When we consider the weakly condition of the lad, it is evident that we may assume that saccharin is comparatively nontoxic. Then, too, the boy may have had an idiosyncrasy for saccharin. The urticaria is, Heilmann thinks, an entirely new finding following the ingestion of saccharin. But urticarias occur frequently after very slight irritations.

Calcium Chlorid in Cocain Poisoning.—Fabry relates a case in which injection of a 10 per cent. solution of calcium chlorid dispelled the toxic condition arising in a nurse of 19 following the injection of 7 mg. of morphin, 3 mg. of atropin and the application as a spray of a 10 per cent. cocain-epinephrin mixture to the laryngeal mucosa, and the painting of the tonsils and the palatine arch with the same mixture in connection with tonsillectomy. The calcium chlorid was given very slowly, intravenously. After two minutes, during which 2 c.c. had been injected, a marked change for the better set in. The convulsions ceased; the rapid, superficial breathing became slow and deep, and the rigid extremities relaxed. At the same time, the pulse grew stronger. A total of 7 c.c. was injected of the calcium chlorid solution in seven minutes. Convulsions returned several times, but the intervals became longer and the convulsions milder, yielding readily to the administration of camphor. It was Karl Mayer of Basel who first recommended calcium chlorid in cocain poisoning. Mayer emphasizes the need of great caution in order that none of the solution may be injected perivascularly, since severe infiltrations that heal very slowly may thus arise.

Radium Emanation in Migraine.—Loewenthal has of late years applied radium emanations in 37 cases of migraine, of which 9 were apparently permanently cured, 8 were much improved, 8 were slightly improved, 2 were not affected, while in 10 cases the later results were unknown as the patients were lost sight of. He was very careful to exclude borderline cases from this series. These 37 patients with migraine received radium-emanation treatment in from 20 to 30 sittings of two hours each, and breathed air containing about four Mache units of radium emanation to the liter.

Wiener klinische Wochenschrift, Vienna

June 22, 1922, **35**, No. 25

*So-Called Acute Abdomen. J. Schnitzler.—p. 555. Conc'n No. 26.
Posthypnotic Painless Delivery. H. Kogerer.—p. 558. Conc'n.
*Embryology of Heart Malformations. Spitzer.—p. 561. Conc'n in No. 26.
The Action of Ergot Preparations. Peters.—p. 564.
*Quartz Lamp in Treatment of Erysipelas. A. Cserpa.—p. 564.
Roentgen Irradiation of Thymus in Psoriasis. Schneider.—p. 565.
*Local Generation of Iodoform. K. Preis.—p. 566.

Diagnosis of Acute Conditions Within the Abdomen.—Schnitzler discusses the attitude of the practitioner toward cases of so-called "acute abdomen" in which he must quickly decide on a definite line of action, and especially, whether surgical intervention must be instituted. He refers to critical abdominal cases in which at first the diagnosis is not the main thing but rather the prognosis in regard to the presumable further course the case will take. The physician must make up his mind whether or not prompt and active treatment is necessary to prevent an unfavorable outcome, and he must also decide whether an unfavorable outcome will be harder to ward off or possibly become inevitable if he delays to institute active treatment. In certain serious conditions the decision is not so difficult: With absolute intestinal occlusion, there is no question that a delay of a few hours may be disastrous. That we are very near the critical danger line we may know if meteorism is highly marked, if the tension of the intestine or of a single palpable loop is very high, or if fecaloid vomiting occurs. That the line has been crossed will be feared if the sensorium commune is not functioning normally and the pulse is thready or if the extremities feel cool to the touch. Schnitzler discusses, therefore, at considerable length, the various symptoms by which the practitioner must be able to recognize promptly in advance that the condition is a critical one, and that within a few hours or even minutes the time for rendering aid will have passed. The threatening complications must not be merely waited for; they must be foreseen. Unfortunately there is no single symptom that will tell us definitely that the moment has come that imperatively demands intervention. On the other hand, the presence of a whole series of tranquillizing symptoms or the absence of alarming symptoms does not prove that the patient is not in danger. A relatively low temperature and a relatively high pulse is an unfavorable indication, but the absence of this incongruity should not be too comforting, and to wait for such a symptom before operating would be entirely out of place. It would be equally bad, if intestinal occlusion were plainly indicated, to wait until fecaloid vomiting occurred, before intervening. In the case of a sudden hemorrhage, we must not forget that the excessive pallor of the patient cannot be taken as a true indication of the seriousness of the case. The pallor may be due as much to the suddenness of the hemorrhage as it is to the quantity of blood lost. The writer relates a case in which

he mistook bleeding from varicose veins of the esophagus as resulting from gastroduodenal ulcer, operated and lost the patient, a man of 23, within eight hours.

Embryology of Malformations of the Heart.—Spitzer discusses the phylogenesis of the partition in the heart of vertebrates, and its significance for the explanation of heart anomalies in man.

The Quartz Lamp in the Treatment of Erysipelas.—Czepa reports excellent results from the use of the quartz lamp in the treatment of about 100 cases of erysipelas, and thinks the method should be universally adopted.

Local Generation of Iodoform.—Preis states that if potassium permanganate is injected into the empty bladder of a subject taking potassium iodid, the odor of iodoform becomes perceptible. He cites further experiences which indicate that the combination generates iodoform in the tissues. He has thus generated iodoform in venereal chancres by local treatment with tincture of iodin and 10 per cent. potassium hydroxid.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 6

*Tests of Kidney Functioning. A. Renner.—p. 249.
*Practice in Cystoscopy. F. W. Oelze.—p. 276.
*Present Status of Blood-Borne Kidney Disease. Schlayer.—p. 278. Cont'd.

Tests of Kidney Functioning as Aid to Surgery.—This is Renners' graduation thesis, based on study of 750 operative cases in which up to eight various functional tests were applied and the results compared with the findings at operations. The electric conductibility of the urine from each kidney was compared, and the power of concentration and of dilution, in addition to the tests with a stain, phlorizin glycosuria, the freezing point and the nonprotein nitrogen in the blood. He emphasizes the number of functions, so that no one test is comprehensive enough to include them all. It is like a mosaic picture. Only by fitting all the responses together and estimating them in their proper proportions, do we get an instructive oversight of the functional capacity of the kidneys. And even this is only for the moment. We have no means of knowing the amount of reserve energy which might allow one kidney to substitute the lacking function in its mate. We are still unable to estimate the force of the extrarenal factors, and the influence of changes in the condition of the circulation. Consequently, even at the best, our functional diagnostic measures will not succeed in eliminating all fatalities from kidney operations.

Practice in Cystoscopy.—Oelze advises the general practitioner and the newly fledged urologist to have a sound, the exact shape and size of the cystoscope, and to use this whenever possible in the final stage of urethritis, etc. The aim is to acquire skill in introducing the true cystoscope when the latter is really required.

Blood-Borne Kidney Disease.—Schlayer analyzes what the last ten years have taught us in regard to hematogenous disease of the kidney. Classification by the pathogenesis represents progress, but to date the grouping is arbitrary and not well founded, either anatomically or clinically, as the biologic and toxicologic elements have not been duly considered. Not the quantitative but the qualitative changes in the secretion of urine are the first and most sensitive signs of disease in the kidney. A single test is never decisive, on account of the varying extrarenal factors, and the individual behavior of the emunctories, as each person has his own special type of elimination. Another point to be borne in mind is that the same change in function may be induced by a number of different causes, and, further, that there is no regular proportion between the severity of the injury and the intensity of the modification of function. The freezing point of the blood is almost disregarded by the internists now, but they are careful to record the nonprotein nitrogen and urea, the indican and the creatinin content on suspicion of renal insufficiency. The latest research has demonstrated that neither positive nor negative findings as to the nonprotein nitrogen can be accepted as an absolute gage of retention or its degree. Extrarenal factors may send up the nonprotein nitrogen in the blood to a figure such as we associate with pronounced kidney disease. The article is continued.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 17, 1922, **1**, No. 24

Medical Science and Politics. G. van Rijnberk.—p. 2384.
*Resection of Transverse Colon with Cancerous Stomach. W. Noordenbos.—p. 2386.
*Artificial Leg After Exarticulation of the Knee. J. van Assen.—p. 2398.
*Leg Reflex in Mental Disease. D. Schrijver.—p. 2403.
Treatment of Epilepsy. A. Willemse.—p. 2407.
Radium Treatment in Medical Practice. H. Folmer.—p. 2409.
Early Syphilitic Nephritis. K. A. Rombach.—p. 2414.
Rupture of Tendon from Contusion. J. H. Driclsma.—p. 2417.

Resection of Transverse Colon with Cancerous Stomach.—Noordenbos says that the operative mortality was 33.9 per cent. in the thirty-nine cases on record in which more or less of the transverse colon was resected en masse with the stomach. He has done this himself in two cases, and one of these patients is still in good health, eight years since the operation. The cancer was extremely cellular, glands were already involved, and the woman was only 39—which render the permanent cure the more remarkable. The interval since the first symptoms was only two months. The other patient had both syphilis and gastric cancer, and did not survive the operation. The ulcer was on the body of the stomach, and it had perforated into the colon, but the vomit was not fecaloid except in odor, and there was no diarrhea or lientery, but a blue tinted fluid injected into the rectum appeared in a few minutes in fluid aspirated from the stomach. The fistula was plainly evident in all of five roentgenograms taken in the course of six successive hours. He reproduces some of them.

Artificial Leg.—Van Assen gives an illustration of a special hinge which locks firmly when bearing a weight and swings loose when the pressure is removed. It is particularly useful for the knee joint in artificial limbs, and to correct a paralyzed knee. A case is illustrated showing the almost perfect function of the artificial legs with this hinge in a case of congenital defect of the legs amounting to exarticulation of both knees which no surgeon could have improved upon.

Leg Reflex in Mental Disease.—Schrijver noted plantar flexion of all the toes on light percussion of the patellar ligament and median surface over the tibia and entire thigh in from 10 to 86 per cent. of 200 male patients with eight different forms of mental disease.

June 24, 1922, **1**, No. 25

*Autotoxic Sulphemoglobinemia. A. A. Hijmans van den Bergh and H. Engelkes.—p. 2499 and p. 2510. Idem. I. Snapper.—p. 2520.
*Estimating Body Temperature from the Urine. S. van Creveld.—p. 2526.
Syphilis Simulating Pernicious Anemia. J. H. Landwehr.—p. 2529.

Autotoxic Sulphemoglobinemia.—Twenty cases are tabulated, including 5 personally observed by van den Bergh and 2 by Snapper, all encountered within a short period. In 5 of the total 20 there was mechanical obstruction of the bowel, and the sulphemoglobinemia subsided after the operation for the ileus. All the other cases were in women, and the disturbances seemed to be functional, although suggesting autointoxication, with occasional partial or total loss of consciousness. All were weak and pale. In one case there was no tendency to constipation. The cyanosis in some cases was so intense it suggested grave heart disease, but the cardiovascular system was apparently sound, and only the spectroscope explained the cases by the characteristic line in the spectrum. The findings with various spectroscopic and chemical tests are described, and tests on other patients taking sulphur for different reasons. Sulphemoglobinemia was found as a physiologic phenomenon in 23 of the 60 healthy adult rabbits; in 4 of them the amount was considerable, up to 10.5 per cent. in the aorta blood and 12.5 per cent. in the portal blood, on gas analysis. In Snapper's 2 cases the women had been taking acetphenetidin for seven and twelve months, and it subsided after suspension of the drug, but returned rapidly on its resumption. Bowel functioning was normal in both.

Body Temperature Estimated from the Urine.—Van Creveld's experiences confirm the convenience and reliability of this method of testing the temperature by the urine, provided—a very important point—that the vessel receiving the urine has been warmed to 40 C. or a vacuum bottle at this temperature is used.